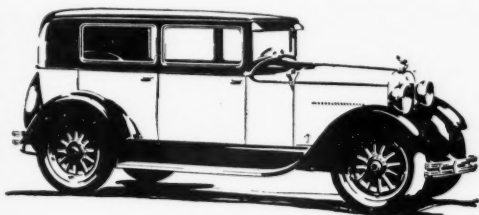


FEB 11 1928

# MOTOR AGE

A Chilton Class Journal Publication  
Published Weekly February 9, 1928

World's Greatest Value  
altogether or  
part by part



The smashing conviction of greatest value that Essex gives on sight, is confirmed by a wealth of costly car detail that was never before dreamed of in this price class.

You cannot mistake this impression of completeness and fine quality in the design of every detail. And you cannot forget that item after item brings you direct to the costly cars to find comparison.

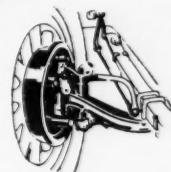
Add these to the performance of its famous Super-Six high-compression, high efficiency motor, and you have \$200 or \$300 more visible values than in the previous Essex, which had the most successful year in 6-cylinder history.

Sedan, \$795 Coupe, \$745 Coach, \$735  
(Rumble Seat \$30 Extra)

All prices f.o.b. Detroit—plus war excise tax



Extra large tires, 5", are used.



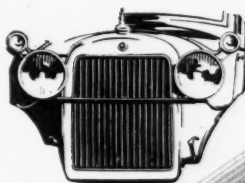
Bendix four-wheel brakes.



Wide heavily crowned fenders.



Black hard rubber wheel with steel core.



Vertical radiator shutters.

The New  
**ESSEX** Super-Six



*It Pays*  
the repairman  
to use the kind  
of piston rings  
people want

## GOOD RINGS and bad rings —look much alike....

UNFORTUNATELY, good rings and bad rings have much the same outward appearance. The difference lies in the hidden qualities that are built *into* the ring throughout each operation of its manufacture, from pig iron to the finished product. These "hidden qualities" cannot be measured. They hardly have dimension. They are the result of processes, worked out over a period of years and through experiment, found to give a superior kind of performance.

*Oil-Regulating Type, 60c*  
Pat. May 2, 1922

PERFECT CIRCLE prides itself with having given to the automotive world really fine piston rings—rings that have *solved ring problems*. PERFECT CIRCLE *Compression* rings minimize Blow-by and PERFECT CIRCLE *Oil-Regulating* rings reduce oil-consumption to the lowest possible amount, and still assure thorough cylinder lubrication.

You can *always* be sure with PERFECT CIRCLES. A nearby jobber can supply you with these infinitely better piston rings.

*Compression Type, 30c*

THE PERFECT CIRCLE COMPANY • HAGERSTOWN, INDIANA

# PERFECT CIRCLE PISTON RINGS



No car is so perfect  
that it doesn't need  
another talking point

*The All-steel Body  
gives you these*

SAFETY

SILENCE

LONG LIFE

LIGHT WEIGHT

. . .

EDWARD G.

**BUDD**

MFG. CO.

*Philadelphia and Detroit*



*Originators of the All-Steel Full Vision Automobile Body*

# ECLIPSE

## BENDIX DRIVE



~ On Most Cars

### Why Genuine Parts?

THE Eclipse Bendix Drive—the connecting link between the electric starting motor and the flywheel of the engine—is automatic in every operation. Takes hold . . . cranks . . . lets go! . . . Simple in construction—needs no adjustment . . . Naturally, close limits and exacting workmanship are imperative in its manufacture—and when emergency necessitates replacement of any part, the same limits must be adhered to . . . Genuine service parts for the Eclipse Bendix Drive are exact duplicates of the original parts and insure satisfactory operation. Use them always. A nearby distributor has them.

Approximately Twice Actual Size

ECLIPSE MACHINE COMPANY, ELMIRA, N. Y.  
Eclipse Machine Co., East Orange, N. J. ❖ ❖ Eclipse Machine Co., Ltd., Walkerville, Ont.

# MOTOR AGE

Vol. LIII

Reg. U. S. Pat. Off.  
Established 1899

No. 6

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C. A. MUSSELMAN, President and General Manager  
J. S. HILDRETH, Vice-Pres. and Director of Sales  
W. I. RALPH, Vice-Pres. DAVID BEECROFT, Vice-Pres.  
G. C. BUZBY, Vice-President

A. H. VAUX, Secretary and Treasurer  
H. J. REDFIELD, Assistant Treasurer  
Cable Address: Autoland, Philadelphia  
Telephone: Sherwood 1424

#### OFFICES

New York—U. P. C. Bldg., 239 W. 39th St., Phone Pennsylvania 0080  
Chicago—5 South Wabash Ave., Phone Central 7045  
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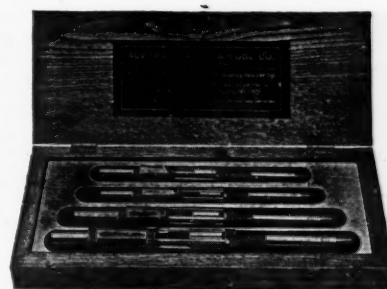
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# ALVORD POLK

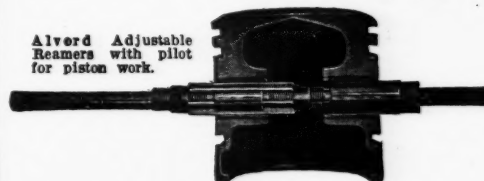
Anything you  
need in tools

## Piston Pin Reamers

Consisting of Reamers  
Nos. 50, 51, 52, 53.  
Reams the Piston Pin  
Bushings of all leading  
cars. Lists at \$36.00.



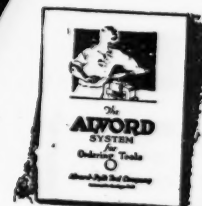
Alvord Adjustable  
Reamers with pilot  
for piston work.



## Valve Seat Reamer Set

Contains one 45 degree reamer for seats  
1 1/4 to 2 1/4 inch diameter. One 15 degree  
reamer for seats 1 1/4 to 2 1/4 inch diameter.  
One 75 degree reamer for seats 1 1/4 to 2  
inch diameter. Ten pilot stems sized to  
fit every possible need.

In the opinion  
of many,  
the finest ad-  
justable  
reamer made.  
Cuts smooth,  
perfect holes.  
Straight and  
"sheer cut"  
blades.



The new catalog includes  
complete Alvord-Polk line  
and full information on  
all types and sizes of  
cutting tools.

Your Jobber Carries Them!

# ALVORD POLK

## TOOLS FOR REPAIR SHOPS

Alvord-Polk Tool Company  
Millersburg Pennsylvania



**TOMORROW YOU'LL WISH YOU HAD THE AUBURN FRANCHISE**

# 115

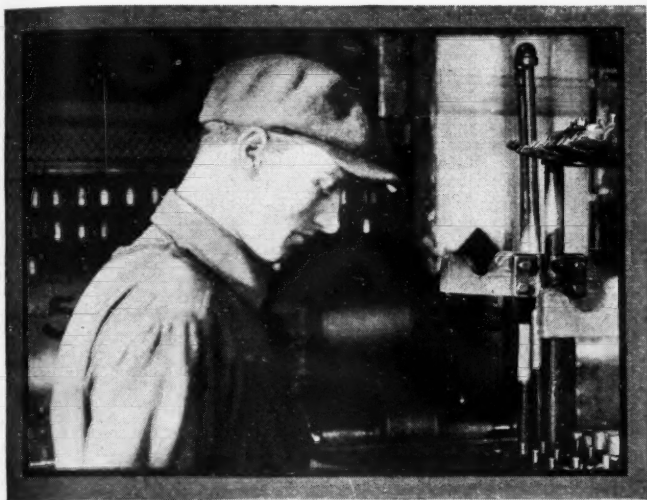
## Horse power

**To our knowledge, the  
New Auburn Model 115  
is the most powerful  
American production car.**

YOUR NEXT CAR  
**AUBURN**  
POWERED BY LYCOMING

76 Sedan \$1395; 76 Sport Sedan \$1295; 76 Roadster \$1195; 88 Sedan \$1695; 88 Sport Sedan \$1595; 88 Roadster \$1495;  
88 Speedster \$1695; 88 Phaeton Sedan \$1895; 115 Sedan \$2195; 115 Sport Sedan \$2095; 115 Roadster \$1995;  
115 Speedster \$2195; 115 Phaeton Sedan \$2395. Freight, Tax and Equipment Extra.  
AUBURN AUTOMOBILE COMPANY, AUBURN, INDIANA

# Both these men bought their cars from a Studebaker dealer!



ONE is the president of a large corporation. His income is in five figures. He could afford and wanted to own a car of such advanced performance and design as to compare favorably with the cars of others in his station in life. He wanted an imposing car of luxury and great beauty. He bought a new President Straight Eight.

The other is a mechanic employed at a good wage. He understands and appreciates mechanical superiority. He naturally wanted to buy a car that represented the finest of modern engineering, a comfortable car for his family to ride in, good looking—the best that *his* money could buy. He bought a new American Edition of Studebaker's Erskine Six.

Both men are pleased with their purchases. Both have a right to be. They have bought the biggest money's worth for their automobile dollars that money can buy.

So in every classification the Studebaker dealer today can fill every motor car demand in his community with cars of high quality and the most advanced and able performance. Whether it be The Commander, World's Champion Car, or the new Dictator, Champion of its Price Class, the new President Eight or the new Erskine Six, Studebaker dealers can *sell* and *satisfy* every class of buyers.

## New Erskine Contract for towns and villages

For small communities we offer a new and unusual contract. Hardly any capital is necessary. No shop need be operated. No used cars need be handled. If you wish you need maintain only an Erskine demonstrator. This entitles you to sell all Studebaker-Erskine models, as well as a profitable line of commercial cars. Mail coupon—or wire direct to Dept. 51 for full information.

### One of these Studebaker- Erskine cars for every purse

#### The New President Straight Eight

100 H. P.—80 m. p. h.—131-in. wheelbase

**\$1985-\$2250**

#### The World's Champion Commander

25,000 miles in less than 23,000 minutes

**\$1495-\$1695**

#### The New Dictator

24-hour record for stock cars under \$1400

**\$1195-\$1295**

#### New American Edition of Erskine Six

24-hour record for stock cars under \$1000

**\$795-\$965**

(all prices f. o. b. factory)

THE STUDEBAKER CORPORATION OF AMERICA  
Dept. 51, SOUTH BEND, INDIANA

Please send me full information on the Studebaker-Erskine franchise.

Name.....

Street Address.....

City and State.....

My present business (if selling cars now, state make).....

**NASH**  
made

**180**

bona-fide retail sales  
*at the Buffalo Motor Show!*

---

---

*Nash is off to a flying start in 1928*

---

---

More "live" NASH prospects  
were secured than at  
any other Buffalo  
Show!



## Whatever the Work The Ball Bearing Does It Better

**O**NLY the ball bearing is ever used exclusively throughout a motor car chassis. This serves to emphasize the fact that only the ball bearing has the qualities necessary for encountering every type and condition of service.

A New Departure Ball Bearing is nearest to absolute perfection for radial and thrust loads whether constant, intermittent or shock in nature—heavy loads at low speeds or light loads at extremely high speeds.

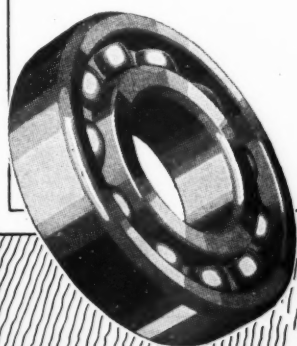
THE NEW DEPARTURE MANUFACTURING COMPANY

BRISTOL, CONNECTICUT

Detroit

San Francisco

Chicago



**New Departure**  
—Quality—  
**Ball Bearings**

# KELLOGG COMPRESSORS

## 3 Steps Toward Greater Profits

### Kellogg Rapid Tire Inspector

Air  
Operated



Price  
\$34.40  
Net

### Kellogg Rapid Tire Changer

Air Operated



Price  
\$44.00  
Net

### Kellogg EM-52-S Compressor



Price  
\$205.60  
Net

Permits faster inspection without injury to tire fabric as a result of the KELLOGG graduated controller valve. Used in conjunction with the KELLOGG Rapid Tire Changer, a tire can be removed from the rim and inspected in less time than is ordinarily used for either operation.

This air-operated Tire Changer is the fastest and easiest means of removing a tire from the rim or putting it back again. KELLOGG graduated controller means a controlled pressure applied to the rim, from the lightest pressure to one ton and a half. Handles any size rim.

**P**ROFITS from tire repairing depend on speed and satisfied customers.

A KELLOGG Rapid Tire Inspector and KELLOGG Rapid Tire Changer, supplied with air from a KELLOGG EM-52-S Compressor, constitute an inexpensive lay-out that speeds up your work, improves your quality, and puts more money in your pockets on every job.

A husky, reliable, two-cylinder compressor. Guaranteed for all general shop use. You can't even tie this one as a hardworking, durable job at a price that doesn't even hurt.

3-4 horsepower motor  
32 gallon tank  
3.86 cubic ft. of air  
Automatic control  
Completely equipped

## KELLOGG MFG. CO.

200 HUMBOLDT STREET

ROCHESTER, N.Y.

# MOTOR AGE

VOLUME LIII

Philadelphia, Pa., February 9, 1928

NUMBER 6

## Ford Faced With Production Delay

Output Half of What Was Expected; 91,000 Men On Payroll

### WORK 5-DAY WEEK

DETROIT, Feb. 8—Through a series of circumstances which have developed since the Ford Model A was announced in December, it is learned that production of the new car is not up to the original expectations of the Ford company. Indications are that large quantity output is still some weeks away.

Because of the situation many Ford dealers in the Detroit area have withdrawn new cars from their display floors and are now concentrating on selling used cars and in promoting service work until such time as they can begin to realize on sales of the new product.

When the car was announced the Fords made it known they expected to attain a production of at least 1000 cars a day by the end of January and 2000 daily by the end of February. From what can be learned it appears the output has barely reached half the figure set for January, with the result that dealers in the vast Ford organization are able to obtain only a small fraction of cars required to fill the large number of orders on hand.

The Ford company now has 91,000 men on its payrolls and reports emanating from Fordson are to the effect that considerable progress is being made in the manufacture of certain units for the car. These are being distributed among the various assembly plants to be held in readiness for big time assembly operations.

It is reported that certain suppliers of units have not been able to deliver parts on schedule and this also has

(Turn to page 10, please)

## Ford's D. T. & I. Profits Drop

DETROIT, Feb. 8—The Detroit, Toledo & Ironton railroad, owned by Henry Ford, had a net operating income in 1927 of \$635,923 compared with \$2,075,275 in 1926.

## National Association of Chassis Elucidators Meets at Chicago

AMONG the annual meetings held during Chicago show week was that of the National Association of Chassis Elucidators. This organization, now two years old, is composed of the professorial gentlemen who elucidate chassis at automobile shows. They are bound by a pledge never to speak unkindly of a competitive make of automobile. They have membership cards, insignia pins, dues and everything.

Officers are E. J. McMullen, president; F. W. Koch, vice-president; E. Phil Merrill, secretary-treasurer.

## Marmon Schedule Greatly Increased

INDIANAPOLIS, Feb. 7—The board of directors of Marmon Motor Car Co. today declared the regular dividend of \$1 per share on the common stock of the company to stockholders of record Feb. 15, payable March 1. Production of 45,000 straight eight automobiles for 1928 was also approved. This action is said to be the result of rapidly increasing unfilled orders, following the introduction of the new Marmon "68" and "78" at the shows in New York, Chicago and elsewhere.

Present production is on a basis of 200 to 250 car a day.

## Rickenbacker and Allen Leave on Extended Trip

DETROIT, Feb. 6—Capt. E. V. Rickenbacker, recently appointed assistant sales manager of the Cadillac Motor Car Co., and Floyd A. Allen, assistant to the president of General Motors Corp., are leaving on an extended trip about the country to address dealer meetings in a number of important points.

Mr. Rickenbacker will appear before gatherings of Cadillac-La Salle dealers while Mr. Allen will speak to groups of General Motors dealers.

## "Six of Century" Adds a Cabriolet

New Sport Model, Custom Equipped, Has Unusual Color Finish

### IS FULLY EQUIPPED

DETROIT, Feb. 7—A cabriolet for two, designed for the less conservative motor car owner, is announced as an addition to the list of body styles for the "New Hupmobile Six of the Century." It comes with or without the rumble seat.

Fitted with factory installed custom equipment, such as cowl lights, trunk rack, wire or disk wheels in front fenders, its racy effect is enhanced by the one-piece, full-crowned fenders, radiator shell design and cap, military visor and forward-tilting windshield, the slight elongation of window spaces, landau bows and the graceful sloping of body lines at the rear and over the gasoline tank.

An unusual color effect has been produced in this car. Main body color is Hawthorne green with Zanzibar green for the window reveals and wheels, black windshield frame and military visor, combined with stripings in Old Ivory. The rear curtain may, of course, be removed. Custom equipment matches that of the car's colorings in every detail, including wheels—whether wood, disk or wire. Even the bumpers and tire covers are designed to match the remainder of the car's ensemble, enhancing the strikingly bizarre effect of the new model.

Interior trimming is a special mohair or leather. All exterior bright work is chromium plated.

The list price announced for this model is \$1,475.

## Babe Ruth With Ramsey

ST. LOUIS, Feb. 6—J. E. "Babe" Ruth, who recently resigned as sales manager of Diamond Piston Ring Co., has been appointed eastern sales manager for Ramsey Accessories Mfg. Corp., manufacturer of Ramco Cushion inner rings and Seal-Flex piston rings for all cars.



## Brousseau Seeks More Highways

Says They Will "Safeguard Large Investments in Automobiles"

WASHINGTON, Feb. 8.—The construction of more highways to safeguard the large investments in automobiles was urged before the House committee on roads this week by A. J. Brousseau, president of the Mack Truck Co. and vice-president of the National Automobile Chamber of Commerce. The committee had before it at the time consideration of H. R. 383, known as the Dowell bill providing \$75,000,000 for Federal aid for the two fiscal years ending June 30, 1931.

Asked if the "flivver plane" would not relieve traffic congestion on the highways, Mr. Brousseau expressed an opinion that airplanes, even of the flivver type, were far too expensive and that it would be many years before this type of transportation would affect traffic congestion, if ever. He pointed out that the owner of an airplane would undoubtedly be also the owner of one or more automobiles and therefore that the air traffic would not relieve motor traffic to any great extent.

Governor Frank C. Emerson of Wyoming appeared before the committee in favor of the bill, declaring that further appropriations for Federal aid highway construction and additional funds for road work within public lands of the Western States were imperative. Representative Walton Moore, and P. T. Peterson, representing the Western Association of Highway Officials, also urged its adoption.

## New Schedule of Prices Is Announced by Nash

CHICAGO, Feb. 6.—Nash prices have been reduced as follows:

			Reduction
<b>Standard Six</b>	<b>New</b>	<b>Old</b>	
4-Door Sedan .....	\$925	\$995	\$70
Coupe .....	\$925	\$995	\$70
2-Door Sedan .....	\$845	\$895	\$50
Cabriolet .....	\$845	\$875	\$30
Landau Sedan ....	\$995	\$1,085	\$90
<b>Special Six</b>			
4-Door Sedan ....	\$1,295	\$1,335	\$40
<b>Advance Six</b>			
4-Door Sedan ....	\$1,495	\$1,545	\$50

## Watson General Manager

BALTIMORE, MD., Feb. 6.—George M. Watson, well-known locally, has been appointed general manager for the Northern Motor Co., distributor of the Gardner line. Mr. Watson formerly held the agency in Baltimore for the R. and V. Knight.

## Great Heroes of Industry and Trade



## The Lawst Straw

ABE CAMPBELL, the human writing desk, for the past decade has patiently trotted through the McFord plant a few feet in front of the superintendent's clerk, serving that worthy as a writing desk. That in itself is no mean feat, but when the rapidly mounting production became too great for the clerk to figure with pencil and paper he added an adding machine to the rest of his equipment. And that, as you can see from the picture, was the straw that broke Mr. Campbell's back.

"I was crooked enough before they handed me that job," said Mr. Campbell, "but look at me now, crookeder than ever."

Mr. Campbell, incidentally, is said to be one of the few crooked men in America who is not actually a crook.

## Detroit Employment Gains

DETROIT, Feb. 6.—Detroit employment for the week ended Jan. 31 totaled 223,502, a gain of 2322 compared with the previous week and a gain of 7901 compared with the corresponding week a year ago.

The figures are based on two-thirds of the factory workers in the Detroit district and are compiled by the Employers' Association of Detroit.

## Ford Faced With Production Delay

Output 50 Per Cent Less Than Planned; Five Day Week in Effect

(Continued from page 9)

milited against carrying out the original plans. Perhaps the most serious problem facing the company is the necessity of providing an additional parking brake to meet technical requirements of motor vehicle laws in several states and also unusual difficulties the company has experienced getting its final assembly lines functioning.

When the company announced it would provide a parking brake mounted on the propeller shaft it developed an engineering and production problem which has contributed to the delay. First the engineering department must determine on the design of the brake and then production facilities must be altered to provide for its manufacture, all of which is a problem which is larger than it sounds.

Because Ford plants were closed for so long a period and because the new car must be assembled with much more accuracy and precision than the Model T the company has been compelled at great expense to train new personnel to man the assembly lines in the various Ford plants throughout the world.

It is reported that the delays have been partially due to Ford's determination to have the car absolutely right before it goes into the public's hands, with the result that the slow procedure is costing them untold sums.

In refuting persisting rumors that he will abandon the five-day-a-week program which was adopted some time ago and work six and seven days Henry Ford declares the five-day program will continue.

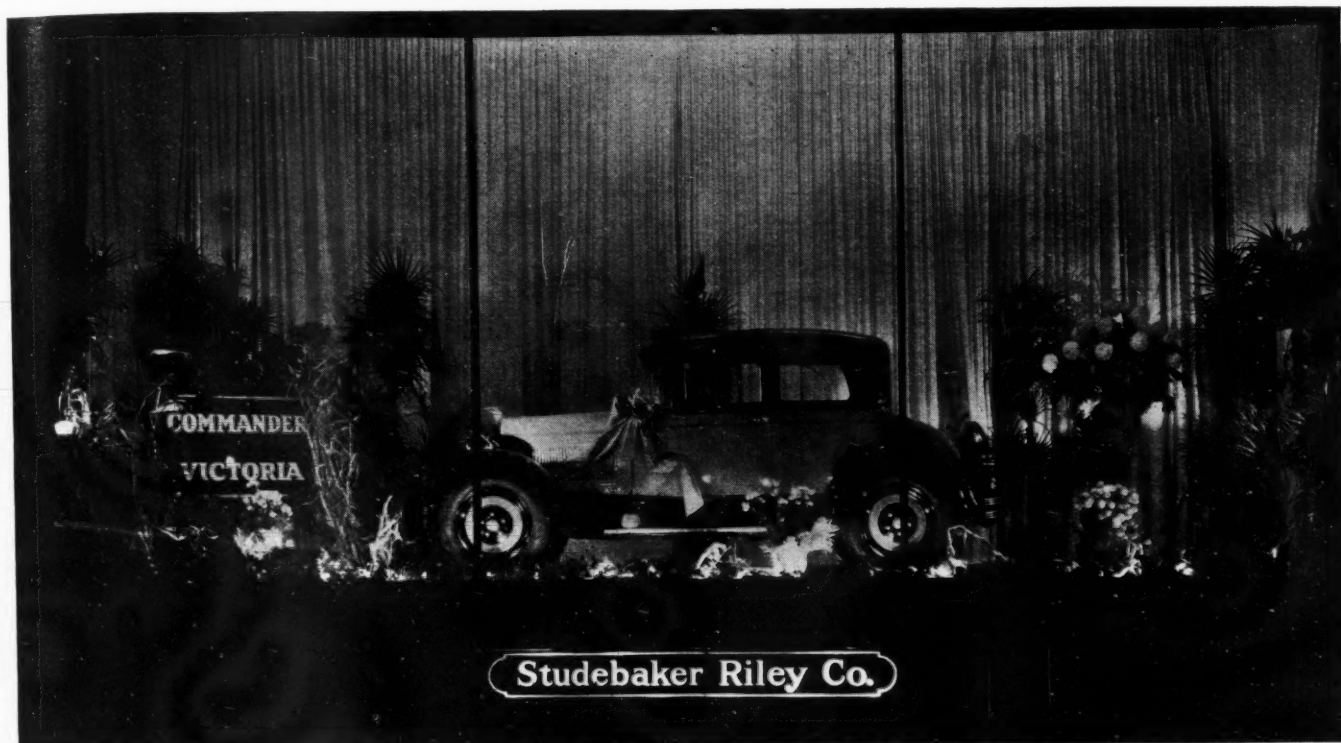
## Corcoran Heads Sales for Kant Rust Products Corp.

RAHWAY, N. J., Feb. 6.—T. C. Corcoran has been made sales manager of Kant Rust Products Corp. He was formerly with Apco-Mossberg Co.

## Chandler Price Changes

CHICAGO, Feb. 3.—Somewhat higher prices on several of the Chandler Big Six models were in effect at the show. The list follows:

	New	Old	Advance
Touring .....	\$1,725	\$1,695	\$30
Metropolitan Sedan .....	1,525	1,525	..
Coupe .....	1,725	1,675	50
Country Club .....	1,725	1,675	50
De Luxe Sedan .....	1,925	1,795	130
Royal Sedan .....	1,725	1,725	..



### From the Gateway of the Golden West

*If you want high class window display pictures you've got to have high class subscribers as your source of supply. This one is sent to us from Kansas City, by C. M. Woodward, Studebaker Riley Company's general manager. Thanks Mr. Woodward; it's one of the best we've had. Have you a Spring merchandising picture that you can send along? We'll thank you for that, too. And the same goes for any of our subscribers. Who'll be the first?*

## Battery Group to Meet at Chicago

CHICAGO, Feb. 9—National Battery Manufacturers Association will hold its winter meeting at the Edgewater Beach Hotel, Feb. 23 and 24. Alvin E. Dodd of the United States Chamber of Commerce, E. L. Green of the National Better Business Bureau and George Woodruff of the National Bank of the Republic of Chicago will be the principal speakers at this meeting.

The rest of the program will be devoted to general and technical subjects pertaining to the battery industry, including suggested revision of storage battery specifications, a book of specifications for the industry, constructive merchandising ideas, freight classifications, a plan for cooperative advertising and the excise tax situation.

Elaborate entertainment is planned for the evenings of the two days of the meeting, and a tour of the Richardson Container Company's plant is scheduled for Friday.

D. H. Kelly of the U.S.L. Battery Corp. is president.

## Output Increases

NEW YORK, Feb. 4—Production reports from automotive manufacturers

indicate general increases in January over January last year. Chevrolet built 91,000 as against 73,676; Hudson built 25,390 against 12,000; Buick built 17,042 against 18,260; Packard built 4150 against 2300; Hupp built 3610 against 2749, and Reo built 3610 against 2322. Graham-Paige built 1497 against 1021 in December.

## Stewart-Warner Profits Show a Slight Increase

NEW YORK, Feb. 6—Stewart-Warner Speedometer Corp. reports net income for 1927 of \$5,201,053 after all charges and taxes, as against \$5,108,886 for the year 1926. This is equivalent to \$8.67 a share and opposed to \$8.51 a share for the previous year. Net profit for the final quarter of 1927 was \$1,011,421, or \$1.68 a share, as against \$1,627,707, or \$2.71 a share, for the third quarter, and \$3—, 540, or fifty cents a share in the last quarter of 1926. Regular quarterly dividend of \$1.50 was declared payable Feb. 15.

## Hooleyism

*A GOOD parts man not only knows his company is always right but can make the customer see it as clearly as he does.*

## Hudson Shows a Marked Increase

NEW YORK, Feb. 4—Hudson Motor Car Co. earned net income of \$14,431,256 in 1927, after depreciation, interest and Federal taxes, equal to \$9.04 a share on 1,596,660 shares of capital stock, against net income of \$5,372,874, or \$3.36 a share in the 13 months ended Dec. 31, 1926.

Higher earnings were accompanied by a betterment in the financial condition of the company as reflected in the balance sheet at the end of the year. Current assets on Dec. 31 totaled \$30,839,321, against \$21,561,395 at the end of the previous year; and current liabilities of \$8,399,449, compared with \$7,340,772.

## Directorate Reduced

NEW YORK, Feb. 6—Directors of Johns-Manville Corp. were reduced from 24 to 9 under a new policy by which department heads no longer are to be named directors.

H. E. Manville was reelected chairman, the other directors being F. D. Bartow and George Whitney of J. P. Morgan & Co., T. F. Manville, W. E. Seigle, T. F. Merseles and W. M. Aldridge.



## Business Outlook Good, Moon Says

**Believes 1928 Will be Biggest  
Year in History of  
Industry**

ST. LOUIS, Feb. 6—"In my opinion, unless all signs fail, the year 1928 will be the biggest year in the history of the automotive industry," said Stanley Moon, secretary of Moon Motor Car Co., in a recent interview. "The automobile buying public has become in the past few years through modern sales and advertising methods pretty thoroughly educated to automobiles, and particularly has the public been educated as to the quality of the materials used in the manufacture of the automobiles and to the performance an owner should expect in a motor car.

"The result of this educational campaign has made the public realize more than ever before that the automobile is a utilitarian means of transportation of the first power. A realization of this has necessarily and logically increased the demand for automobiles tremendously during the past few years and I see no reason to believe that there will be any letup in the demand for automobiles during the year 1928. On the other hand, there is every reason to believe that the year 1928 will, beyond the shadow of a doubt, be the greatest motor year ever known in history. The sale of the automobile as a necessity goes hand in hand with the tremendous increase in the use of telephones throughout the country and in the rural communities as well as in the cities and towns. The automobile, telephone, and good roads in collaboration with the great railroad systems of the country have united in a great combination of service.

"The great road-building program of both the state and federal governments is going forward so rapidly that distances heretofore considered insurmountable by older methods of transportation are being practically eliminated. Such a favorable condition as regards good roads most certainly is not calculated to reduce the production of automobiles in 1928."

### Davis Coast Manager for U. S. Compressor

SAN FRANCISCO, Feb. 7—Harry H. Davis has been appointed west coast factory manager for the United States Air Compressor Co. Mr. Davis will have his headquarters in this city, where the company has established an office and warehouse.

### Good Luck



**J. E. Roberts**

**To care for a greatly increased volume of business following the announcement of its 1928 line, Hupp Motor Car**



**F. D. Peabody**

Corp. has promoted J. E. Roberts and F. D. Peabody from their respective field activities to be assistant sales managers.

Shake hands with these business boosters when they come your way.

## Graham Talks to 800 at Luncheon

**Pledges Company to Fair  
Trade Practices; Rockne  
Also Speaks**

CHICAGO, Feb. 4—Men of principle make principal men. That was the message brought to 800 Graham-Paige dealers assembled at a luncheon during the Chicago show by Ray A. Graham. He declared that the promise made to the industry when he and his brothers took over the Paige-Detroit in June had been fulfilled in January.

"Character, capability and capital among dealers are the prime requisites to success. It is the purpose of the Graham-Paige 'legion' to enroll in its membership men of business character, integrity, unity and loyalty," said Mr. Graham.

In turn he promised that the new Graham-Paige Co. would do everything in its power to stop unwholesome business practices such as giving of high prices on used cars to camouflage what really amounts to a discount. The company is pledged not to allow untruthful advertising. It will frown upon overpersuasion of the customer and lies about competitors' products.

"We'll inject energy and effort into our end of the business and we'll work with the dealers to help them do the same in their business. We're going to be honest with you fellows. Men of principle become principal men."

The luncheon was started with the presentation of Lorado Taft, the famous Chicago sculptor who designed the Graham-Paige emblem. Mr. Taft was followed by Knute Rockne, Notre Dame's grand old man.

Joseph B. Graham followed his brother Ray with a partial description of the new 120 hp. 8 which Graham-Paige will shortly present.

### Wire Wheels and Fender Wells Offered by Hudson

CHICAGO, Feb. 7—The Hudson Motor Car Co. announces that wire wheels and fender wells will be offered as optional equipment at extra cost on Hudson models. A trunk is also being included as standard equipment on the standard 5-passenger sedan and on the landau sedan.

The company also announces a revision of price on the Essex and Hudson coupes involving a rumble seat. The Essex coupe now lists at \$745 with rumble seat \$30 extra, while the Hudson coupe lists at \$1,265 with rumble seat at \$30 extra.





### United Motors Salesmen at AC Plant

UNITED MOTORS SERVICE salesmen who during their annual convention visited the AC Spark Plug Co. plant at Flint, Mich., are shown in this group. W. S. Isherwood, general sales manager for AC, addressed the men along service lines at Hotel Durant during a banquet and talks were also given by Sumner S. Howard, AC service manager; Earl McGinnis, AC advertising manager, and F. A. Oberheu, sales manager for United Motors Service, Inc.

### Beecroft Talks to 250 at Akron

AKRON, Feb. 4—The Akron Automobile Show officially opened here with an address to 250 local automobile men by David Beecroft, vice-president of the Chilton Class Journal Co., at a luncheon in the Portage Hotel.

Beecroft talked rubber, painted a picture of 1928 for the automotive industry, impressed the importance of the "greatest industry today" and gave a short, comprehensive sketch of the industry since its inception.

"Akron is one of the magic cities of industry," he told the dealers, "and your tire manufacturers have kept up with every other advancement in automobile manufacture."

The veteran of the industry, who, according to Joseph Burns, president of the Dealers' Association, "loves the game," predicted a return to "comfortable prosperity," first to be enjoyed since the first quarter in 1921.

"There have been spurts, but now I believe we will have a continuation of prosperity in the flapper year of the industry as it is called by some."

Beecroft cited the 1930 completion of the Federal Road System, agriculture prosperity, low inventories, steel pickup and export condition betterment as part of the signs of the times.

His national and international view of the entire situation, coupled with first-hand knowledge of major changes in the industry brought out in various 1928 automobile shows, proved particularly helpful.

### Reports Biggest January

BALTIMORE, Feb. 4—The American Hammered Piston Ring Co. announces that business for January, 1928, was 40 per cent greater than

January, 1927, and a still greater percentage ahead of January, 1926 and 1925.

The Manley Mfg. Co., reports a \$30,000 increase over January last year, Black & Decker Mfg. Co. about 15 per cent, and Bonney Forge & Tool Works about 15 per cent.

These are merely given to you as some bright spots which indicate that 1928 will be a much better business year than 1927.

### Clingan, Formerly of Bock, Joins New Departure Co.

TOLEDO, Feb. 7—Robert E. Clinigan, formerly president and general manager of the Bock Bearing Co., which has been absorbed by the Timken Roller Bearing Co., has joined the New Departure Manufacturing Co., Bristol, Conn., in an executive capacity.

### Monopoly Plus

WASHINGTON, Feb. 6—The last word in monopolies has been reported to the Department of Commerce by its consul, W. R. Allen, at Guayaquil, Ecuador. It is to the effect that no automobile may be imported into Ecuador which is equipped with a cigar or cigarette lighter of any kind.

Ecuadorian consuls have been instructed to refuse to certify invoices covering imported automobiles having such lighters as a part of their equipment. The reason for the regulation is that a Swedish company has been granted the exclusive monopoly to import, export, or sell matches in that country.

### Studebaker Sales and Output Gain

SOUTH BEND, IND., Feb. 6—Retail sales of Studebaker and Erskine automobiles for the month of January, 1928, were largest in Studebaker's entire history, exceeding by 58 per cent the corresponding period of 1927, according to announcement made here yesterday by A. R. Erskine.

Figures are based on the actual delivery of Studebaker cars, rather than factory production.

Twenty-two out of 23 branch territories contributed to this increase, the company states.

### Wins Multibestos Award

WALPOLE, MASS., Feb. 6—Glenn A. Watson, of Minneapolis, Northwestern district manager for the Multibestos Co., was recently awarded the pin of the Multibestos 100 Club, emblematic of his election as Honor Salesman for 1927.

The award was made with elaborate ceremony at the annual banquet which ended a week's sales conference at the factory, which is located in this town. All sales representatives and executives of the company were present and Mr. Watson was extended hearty congratulations in appreciation of the splendid record which he made during the past year.

The sales conference this year proved especially helpful to the field men. An inspection of the factory, where all details of the manufacturing processes were carefully explained, was followed by an engineering session. This was in charge of Alvin M. Yocom, chief engineer, who answered questions of brake construction, service and maintenance.

## Grant Calls Used Vehicle "Blessing"

Tells How They Double Sales of New Cars; Might be Sold at No Profit

CHICAGO, Feb. 6—The used car is a blessing to the automobile industry.

Such was the message to 1600 automobile distributors, dealers and salesmen brought by R. H. Grant, vice-president and general sales manager of the Chevrolet Motor Car Company, at the recent banquet of the Chicago Automobile Trade Association. It was the eighth annual pre-show sales meeting of the association and besides Mr. Grant the speakers included Alfred Reeves, general manager of the National Automobile Chamber of Commerce; C. A. Vane, manager of the National Automobile Dealers' Association; C. C. Hanch, general manager of the National Association of Finance Companies; Harry G. Moock, managing director of Greater Market Development A.E.A., and M. L. Hemenway, of the Motor & Accessory Manufacturers' Association.

"We sell approximately 4,000,000 new cars each year, and if it were not for the used car the industry would not sell more than 2,000,000," said Mr. Grant in explanation of what his audience at first took for a facetious statement. "The average automobile built today will operate successfully for an approximate life of seven years, but the public, thank God, gets tired of 'em in two."

"Every industry expects to make a limited return on its investment. The automotive industry is no exception. There has been a lot of agitation in an attempt to persuade the dealer that he must mark up his used cars so that both he and the salesman can make a profit from their sale. Isn't the margin of profit sufficient to give the dealer a fair return on his investment from the sale of new cars. If it is, and I believe it is, it is not necessary to make a profit on used cars. Mark them where you can make a fair profit on your entire business."

### Must Move Used Automobile

"If you don't move your used cars, you can't sell your new ones. Get together on your appraisals. Don't bid higher than you should to insure good profit. The salvation of the automobile industry is cooperation of the manufacturer, dealer and salesmen, and if we all pull together we can keep this 4,000,000 market."

Mr. Grant declared it his opinion



## Horse Travels Fast as Car

*THERE is no rivalry between Red River, the educated horse shown in the trailer, and the automobile. Instead, a Buick coupe is greatly extending Red River's range of activity, by hauling him around the country. The horse is famous in the Northwest as a star performer at the various roundups and stampedes. His owners, Bob Ingersoll, Bob Russell and Mickey O'Hara, are shown beside the Buick*

that 1928 will be an excellent year for the industry. He said he could see nothing in the election that will keep business from running with a wide-open throttle.

## Morgan Wins First Prize in Detroit Buick Contest

DETROIT, Feb. 6—Winners in the contest held by Buick dealers in Detroit for the greatest volume of individual sales during 1927, have been announced by James Dickson, Jr., manager of the Buick Motor Co. branch at Detroit. They follow: First, Peter D. Morgan, Buick Detroit branch; second, William Dues, Louis Rose Buick Sales Co.; third, George Matick, Telotte Buick Sales Co.; fourth, Ben Rose, Telotte Buick Sales Co.

Besides winning first prize in volume of sales Mr. Morgan also led his organization six times during the year in his standing in the contest. John R. Modlin, of the Harley Buick Sales Co.; Russell G. Milne, of the Decker Buick Sales Co., and Frank Manning, of the Stanley Krajenke Buick Sales Co., each led their organizations five times.

## McQuay-Norris Elects

ST LOUIS, Feb. 4—At the annual meeting of the stockholders of the McQuay-Norris Manufacturing Co., held recently in this city, the following directors were elected: William K. Norris, Louis A. Safford, Charles L. Derrickson, Arthur G. Drefs, Arden J. Mumert, Wallace C. Winter, Charles R. Kalb.

The newly elected directors met immediately after the stockholders' meeting, and elected the following officers: William K. Norris, president; Charles L. Derrickson, vice-president; Louis A. Safford, vice-president, and Arthur G. Drefs, secretary-treasurer.

## Can be No Car Trust: Goldsmith

Chandler Sales Head Says Monopoly Impossible in Auto Industry

BOSTON, Feb. 3—"Monopoly is a bugaboo that has crept into the automotive industry within the last few years, and it seems to have disturbed dealers and salesmen somewhat because they have never made any analysis of industrial conditions," Harrison Goldsmith, Chandler Motor Car Co. sales manager, said at a luncheon here yesterday attended by nearly 250 New England dealers called together by Manager Fred A. Hoover, of the Boston branch. "It is about time to begin blasting it out of the picture."

"Look back a generation ago and see what apparent monopolies were being built up in oil, steel and other industries. According to the pessimists of those days all the independents were to be put out of business. Note how many independent companies are functioning and making money today."

"There can be no monopoly in the automotive industry, because it is built on distinctiveness. There are millions of Americans who like to get something a bit different. We have not yet merged our people into any mass unit. They have different ways and habits of speech in various sections of the country. So the independent automotive company will live and prosper as long as it gives value and individuality."

## Standitall Has Coast Stock

OIL CITY, PA., Feb. 6—The J. C. Black Manufacturing Co., manufacturer of Standitall Radiators, has placed a stock in San Francisco.



## Dodge Broadway Sign is Largest

New Flasher Half Block Long,  
Five Stories High; Has  
20 Miles of Wire

NEW YORK, Feb. 7—The largest and most brilliant electric sign on Broadway was recently put into operation by John R. Lee, general sales manager of Dodge Brothers, Inc. This sign, advertising Dodge Brothers, in letters 14 feet high, extends half a city block in length and is five stories high. It stands on the roof of the Strand Theatre building.

An idea of the size of this sign may be derived from the fact that approximately 20 miles of wire are utilized and that it carries a load of 280,855 watts.

The sign itself embodies several new features in illumination, among which is a novel method of operating the motograph, or ribbon of running words. This appears as an endless ribbon, unwinding from a spool at one end of the sign and rewinding on the spool at the other end. The letters of the sign are outlined in three rows of lamps, the two border rows being sunk in a trough of polished metal which acts as a mirror, producing the effect of nine rows of lamps instead of three.

The putting of this sign into operation was the occasion for a large dinner of The Broadway Association, held at the Hotel Astor, four blocks away from the Strand building. It was at this dinner that Mr. Lee gave the signal which put the sign into operation at dusk. Numerous persons of importance in New York and in the automotive and illuminative fields were present.

### Dornseif Sales Manager Empire Tire & Rubber Co.

TRENTON, N. J., Feb. 7—A. J. Dornseif, for the past five years salesman for Empire Tire & Rubber Co., has been made sales manager. He has already assumed his new duties.

### Packard Net Gains

NEW YORK, Feb. 4—Packard Motor Car Co. reports profit for the last four months of 1927 of \$6,810,904 after depreciation and Federal taxes, as compared with \$4,849,540 for the same period of 1926. This is equivalent to \$2.27 a share as against \$1.61 a share a year ago.

Net profit for December was \$1,277,636 as against \$1,014,065 a year ago and constitutes the best December in the company's history.

## Jest—A Bit Cynical

By Sherman Swift

THE main trouble with writing a column is the lack of room between the top and the bottom of the page. Just as one gets into his stride he must quit. I sincerely hope that the printers will hurry up with that rubber type they've been talking about for all these years. We attempted in our last column to cover the subject of radio advertising, but succeeded, because of lack of space, in writing only a few words about the higher priced kind. There is still much to be said about that, but let us pass it by and take up the main evils of the forty-dollars-for-four-minutes kind. I do not know that your community is infested with this species of static, but it is quite in evidence in the city of, let us call it, Philopena. Advertising of this kind, like overdue bananas, comes in squashy bunches. It is all local stuff and usually consists of such aesthetic fodder as plumbers' supplies, certain intimate toilet articles and Johnson's Skinless Scrapple. It starts at 6.30 and is all over by the time the audience returns to the radio from dinner. Who listens to it I do not know.

THIS is the usual continuity: First we hear a piano, tinkling "Alexander's Rag-Time Band," an air of the moment in Philopena. The music stops. The announcer takes the air: "Jones' Slaughter House Co. greets its unseen rad-dio audience. This firm makes a speci-al-ity of Jones' Barkless Frankfurters, clean and sanitary and good till the last drop. Ask for 'em by name."

AGAIN the piano: "Tomorrow night at the Darktown Strutters' Ball." Again the announcer. They have played a cruel jest on him. Wholly unprepared, he has to do a dialogue. Fortunately he has no sense of humor; otherwise he'd lose his job by laughing in the important places. "Hello, Bill, why do Martin Brothers, home builders, established 1928, number 453-563 Ascension Street, be such a dependable firm to do business with?" Answering himself: "Hello, George, old topper, because they make a speci-al-ity of installing nothing but Superseal brass pipe, made by Monahan and Monahan, Commonwealth Parkway, Minneapplesauce, Minn., whose slogan is: 'The best is none too good.'"

QUITE the most ludicrous of the few that I have heard called for the announcer to vouch for the integrity of his "intimate friend," which he did in this wise: "When I want work done on my furnace or water system, I always feel safe in calling on my intimate friend, Tim Pug-er-Pugown; pardon me I think that name is Pugowen." He didn't know his intimate friend's name.

AND then we have the rhymed announcement, sung to a popular air. It goes like this: Good evenin' rad-dio audience, hoo-duh-doo, good evenin' rad-dio audience, hoo-duh-doo; we would like to kindly state, we hope we don't keep you folks up too late, with our prog'um broadcasted from station O-P-U."

MY experiences as a forecaster have left much to be desired. In the simpler predictions such as, "I'll see you later," or, "We won't go home until morning," I have been eminently successful. But where any great amount of elapsed time has had to be taken into consideration I have not done as well. However, I'll take another chance; I'll predict that it won't be more than a couple of years before radio advertising will one with advertising on the moving picture screen. You remember what happened to that.

*Incidentally, it is probably known to many of our readers that when a publisher makes a typographical error of any moment in a printed advertisement, he is frequently required to repeat that advertisement without charge; why should not the same thing be required of a broadcasting station? There's a thought. A mere false note in a musical selection or a mispronounced word and you get your "hour" all over again for nothing. Which, in my opinion is frequently what it is worth.*



## "Coffee and" for Marmon Men

Distributors and Dealers Break Fast and Listen to Pres. Williams

CHICAGO, Feb. 1—Early morning inspiration was served with the coffee and rolls to a gathering of distributors and dealers who filled the grill room of the Blackstone Hotel at the Marmon breakfast this morning.

G. M. Williams, president of the Marmon Motor Car Co., served the inspiration. He was the only speaker. In a talk humorously interspersed with references to John Q. Public, Bazzitz and Bazzatz and who-shoot-John, he pleaded for more intimate contacts with the factory, sketched the year's outlook as Marmon sees it with its two new models and glorified the gospel of hard work.

In the course of his talk he gave his hearers a look at the Marmon officials to whom he is acting as assistant—Col. Howard C. Marmon, vice-president in charge of engineering; Hal Purdy, vice-president in charge of production; J. A. Bohannon, assistant to vice-president and purchasing agent; and C. J. Sherer, treasurer. A. R. Heiskell, vice-president and secretary, stayed at the factory, he said, to mind the baby.

H. H. Brooks, vice-president in charge of sales, introduced Mr. Williams as a man who knew the importance of sales vision, as represented by a sense of public demand.

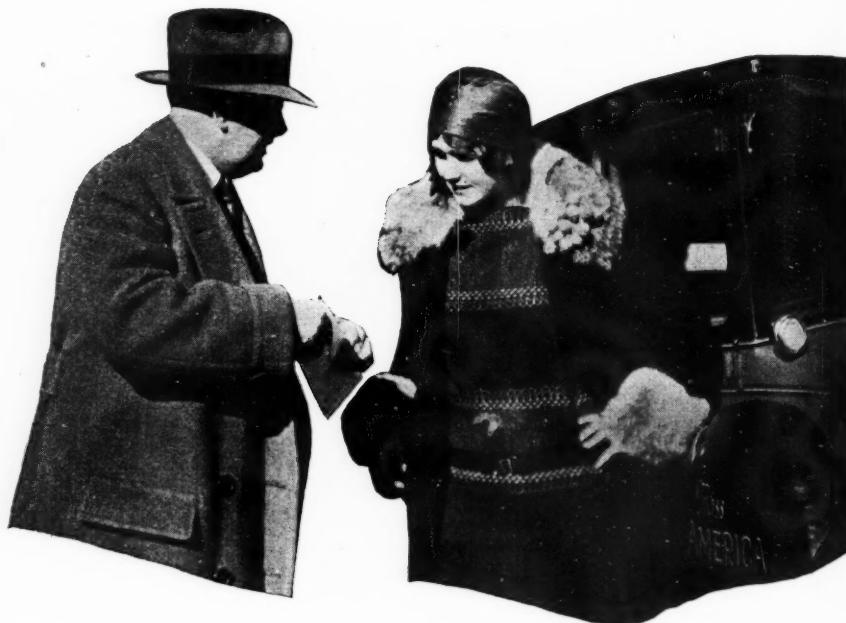
### Bradshaw Distributor of Studebaker for Dallas

DALLAS, Feb. 6—The Bradshaw Motor Co. has assumed the distribution of Studebaker and Erskine cars in Dallas, Texas, according to announcement made by the Studebaker Corp.

### Bay State Deaths Lower

BOSTON, Feb. 6—Figures for 1927 show the total number of persons killed by automobile accidents as 693, compared with 705 in 1926 and 755 in 1925. Total persons injured were 31,721 in 1927, as compared with 25,351 in 1926.

In commenting on the increase in injuries reported, Registrar Goodwin says: "The people who now point to the increase shown in personal injury statistics as an argument against compulsory insurance know these figures mean nothing. Thousands of occupants of automobiles involved in slight accidents have claimed personal injury in order to club insurance companies into paying property damage.



### All-American Beauties

*WHEN Miss America came to Hartford, Conn., she was met by A. C. Hine, president of the A. C. Hine Co., who placed at her disposal during her engagement at a local theatre an Oakland All-American six cylinder landau sedan. The title does not include Mr. Hine; merely the two at the right*

"Every insurance man knows this and many have complained to me about about it. Therefore, no responsible, honest person will use the personal injury statistics as a guide, for he knows there have been fewer accidents this year in Massachusetts than for the several preceding years."

### Peerless Away to Good Start for Biggest Year

Cleveland, Feb. 6—Actual shipments of cars for the last month are greater than those of any January in the experience of the Peerless Motor Car Corp., with a single exception. The exception was in 1926, the peak year in Peerless history, when production on all models was in full swing.

This year, the new Six-91 was first introduced at the New York show, and production was started early in January, taking some time to gather momentum, and the resultant slight decrease in shipments places January, 1928, just slightly below January, 1926. It is predicted that 1928 will be the company's biggest year.

### Buys Johnson Bronze

NEW CASTLE, PA., Feb. 4—Announcement is made that P. J. Flaherty, president and general manager, has purchased the Johnson interests of the Johnson Bronze Co. The purchase price has not been made known. No change is contemplated, either in operation or personnel, Mr. Flaherty continuing as president and general manager.

### 1000 Shock Absorbers Made Daily for Ford

CLEVELAND, Feb. 4—Daily production of 1000 Houdaille shock absorbers for the new Fords will be started within 10 days by the National Acme Co., Fred Chapin, president, revealed today.

The increased activity at the plant will call for the employment of 350 additional workers.

### 4444 Cars Each of \$1000 Value Stolen in N.Y.C.

NEW YORK, Feb. 9—Thefts of automobiles valued at more than \$1,000 each in New York City during 1927 amounted to 4444, according to statistics made public last week by the police department. Figures on thefts of cars of lesser value were not included in this report.

### Gardner Holds Meeting

ST. LOUIS, Feb. 6—More than 75 distributors and dealers attended the Chicago meeting of the Gardner Motor Car Co. during the Chicago show, coming from every section of the central distributing territory.

Speakers at the meeting were Russell E. Gardner, Jr., president of the company; Fred W. Gardner, executive vice-president; Ferdinand Oberwinder, of the D'Arcy advertising agency, and William Ristau, of the Western Tire & Battery Service, Melrose Park, Ill., Gardner dealer. The 1928 program was comprehensively outlined.

## Howard Name of New Export Car

Detroit Company Organized to Build Vehicles for Overseas Trade

DETROIT, Feb. 6—An interesting development in the automobile world is the announcement here of the formation and incorporation of the Howard Motors Corp., which will build the Howard, a motor car engineered and built expressly and only for overseas requirements.

Executives of the corporation state that a complete line of six and eight-cylinder motor cars, also a line of truck chassis,  $\frac{3}{4}$  to 1½-ton capacity, will be marketed, all subject to distributor specifications for equipment. Particular stress is laid on the fact that Howard distributors will be given every support by a sales organization well aware and in sympathy with the problems which distributors in overseas markets and far away from the factory are faced with.

It is understood that a light six-cylinder, 110-in. wheelbase car in three models, five-seater tourer, two-seater with dickey seat, and a five-seater saloon, will be in production about March 1.

## Nagel Electric and Safe-T-Stat Co. are Combined

TOLEDO, OHIO, Feb. 6—Business of the W. G. Nagel Electric Co., maker of ammeters, radio and auto accessories, and the Safe-T-Stat Co., Brooklyn, N. Y., have been merged, effective today, and the eastern plant will be moved to Toledo with all manufacturing operation centered here.

It was announced that the Nagel plant at 449-525 Hamilton St. has been sold to the Brooklyn corporation at a consideration of more than \$1,000,000, but in the merger the personnel of the Nagel organization will be retained.

D. G. Nagel is president, Rug Martin, of the Brooklyn company, will become vice-president; Harry E. Adams will be treasurer and E. J. Walker, secretary.

The two organizations make an ideal combination, officials said. Key men from Brooklyn will come to Toledo and it is anticipated that there will be plant extension and added employment here.

## Moves Detroit Office

CHICAGO, Feb. 4—The Detroit office of the Binks Spray Equipment Co., formerly located at 7366 14th Ave., has been moved to larger quarters, in the convention hall, 4456 Cass Ave.



By Lewis C. Dibble

THE automobile industry's seasonal case of rumer-tism appears to have been pretty well cured up by the end of the Chicago show. The affliction had it this year that price cutting which featured the New York show would continue. Inasmuch as makers have indicated that present prices are here to stay business should stabilize itself and sales volume should increase accordingly.

\* \* \* \*

DUD CARSON of Campbell Ewald almost froze to death on the train coming over to Chicago from Detroit. All night Dud had to clutch the covers to keep a wicked wind from blowing them away. In the morning Dud climbed all over his compartment shutting ventilators. So you can imagine his surprise when he turned on the electric lights and found the electric fan had been running full blast all night.

\* \* \* \*

HEARD a funny crack at the National Automotive Parts Association dinner over in Detroit the other night. Harry Cobleigh of the N.A.C.C. said, "A little jack will raise a car but it takes a lot to keep it up."

\* \* \* \*

ANOTHER funny thing happened at the N.A.P.A. dinner in Detroit. Ralph Sandt, of the sales committee of General Motors Corp., was the only speaker who appeared in evening dress. And when Ralph was called on he got a big laugh when he said to the boys, "Your head waiter brings hearty greetings of the season."

\* \* \* \*

CLAYTON HILL, of the Murray Corp. of America, gave some very illuminating information on how body sizes are determined when addressing the Society of Automotive Engineers, last week. Mr. Hill made the engineers sit back and laugh when he declared that in his experience body dimensions are controlled largely by the height and girth of the president of the automobile company.

\* \* \* \*

MET W. R. Tracy, vice-president in charge of sales of Oakland-Pontiac, in the lobby of the Hotel Stevens and he assured me that Oakland-Pontiac sales are breaking all records. January business is three times as great as any previous January and Bill said that February schedules call for a similar increase.

\* \* \* \*

MAURICE THORN, who among other things, runs Studebaker's proving grounds, was an interested visitor at the Chicago show on opening day. "Never in my life have I seen such a gorgeous display," said Maurice, a few minutes after he had been in conference with The President.

\* \* \* \*

THE other day when the Graham-Paige outfit was staging another of its brilliant dealer meetings at the Book-Cadillac Hotel in Detroit, we induced Joseph and Ray Graham to pose for their picture with Knute Rockne, designer of Notre Dame football teams. And when the sitting was all over, Joseph suggested that a suitable caption for the picture would be "Two men and Knute Rockne." Anyway, we thought the trio an all-American selection.

\* \* \* \*

FOR the first time in history, W. A. Smith, sales manager of duPont Motors, was exhibiting the company's line at the Chicago show. And the new super charger certainly attracted considerable attention.



## What's Coming in Motordom

### SHOWS

Ansonia, Conn., Armory .....Feb. 23-25  
 Automotive Equipment Ass'n, Coliseum, Chicago .....Oct. 22-27  
 Bethlehem, Pa., Coliseum .....Feb. 19-25  
 Binghamton, N. Y., Exhibit, State Armory .....Feb. 15  
 \*Boston, Mechanics Bldg. ....March 10-17  
 \*Canton, Ohio, Land O' Dance ..Feb. 12-19  
 Casper, Wyo., Arkeon Dancing Academy .....March 5-8  
 \*Chattanooga, Tenn., Municipal Auditorium .....Feb. 13-18  
 Deadwood, S. D., Auditorium ..Feb. 20-25  
 Denver, Auditorium .....Feb. 27-March 3  
 Des Moines, Coliseum .....Feb. 20-25  
 Evansville, Ind., Coliseum, Feb. 26-March 3  
 Fort Worth, Texas .....March 10-17  
 Fresno, Calif., Civic Auditorium..Feb. 16-19  
 Grand Rapids, Mich. ....Feb. 6-11  
 Hackensack, N. J., Arcola Auditorium, Feb. 27-March 4  
 Hartford, Conn., State Armory..Feb. 18-25  
 Hornell, N. Y., State Armory...March 5-10  
 Indianapolis, Auto Show Bldg. ..Feb. 13-18  
 Johnston, Pa., Auditorium, Feb. 27-March 3  
 \*Kansas City, Mo., American Royal Bldg. ....Feb. 11-18  
 Kinston, N. C. ....April 9-13  
 Los Angeles .....March 3-11  
 Mankato, Minn., Armory .....Feb. 15-18  
 Miami, Fla., Cinderella Auditorium, Feb. 18-25  
 Muskegon, Mich., Armory .....Feb. 14-18

Omaha, Neb., Municipal Auditorium, Feb. 20-25  
 Plainfield, N. J., Amusement Academy Feb. 18-25  
 Providence, R. I., Cranston Street Armory .....Feb. 11-18  
 Quebec, Can., Drill Hall ..Feb. 25-March 3  
 Salon, Automobile Salon, Inc., Hotel Biltmore, Los Angeles .....Feb. 11-18  
 Salon, Automobile Salon, Inc., Palace Hotel, San Francisco..Feb. 25-March 3  
 San Antonio, Texas, Goad Motor Co. Bldg. ....Feb. 12-18  
 San Bernardino, Cal., National Orange Show Bldg. ....Feb. 16-26  
 San Diego, Calif. ....March 10-15  
 Schenectady, N. Y., State Armory, Feb. 20-25  
 Seattle, Wash. ....Feb. 10-17  
 Sheboygan, Wis., Eagles Auditorium, Feb. 6-12  
 Sioux City, Iowa, Armory .....Feb. 22-25  
 Sioux Falls, S. Dak., Coliseum..March 28-31

Spokane, Wash., State Armory..Feb. 15-18  
 Springfield, Ill., State Arsenal..March 7-10  
 Springfield, Mass., Municipal Auditorium .....Feb. 27-March 3  
 \*Tampa, Fla., Davis Island Coliseum, March 29-April 6  
 Trenton, N. J., State Armory ..Feb. 18-25

\*Will have special shop equipment exhibit.

### CONVENTIONS

Automotive Equipment Association, Grand Hotel, Mackinac Island, June 10-16  
 Automotive Equipment Ass'n, Coliseum, Chicago .....Oct. 22-27  
 Automotive Service Association of New York, Annual Banquet, Hotel Astor .....March 8  
 North Carolina Automotive Trade Ass'n, Annual Meeting, Charlotte Feb. 23  
 Society of Automotive Engineers, Chateau Frontenac, Quebec..June 26-29  
 Texas Automotive Dealers' Association, Gunter Hotel, San Antonio..April 16-17

### RACES

Atlantic City, N. J. ....May 5  
 Daytona Beach, Fla., series of stock car races and world's speed trials, Feb. 15-23  
 Detroit .....June 3  
 Indianapolis .....May 30

### Watch For It!

Feb. 18—Statistical Issue—Automotive Industries.

## Seek Maryland Two-Brake Law

BALTIMORE, MD., Feb. 6—Maryland has taken up the question of brakes on motor vehicles and E. Austin Baughman, state motor vehicle commissioner, has announced that he will seek additional legislation.

The present law in Maryland provides only that vehicles be equipped with "adequate brakes."

Commissioner Baughman is president of the Eastern Conference of Motor Vehicle Administrators, and this organization took a stand on the brake question at a recent meeting. The following resolution was passed:

### Text of Resolution

"Every motor vehicle operated in or upon any public highway in this state shall be equipped with brakes adequate to control the movement of and to stop such vehicle. Every automobile so operating shall be equipped with at least two braking systems with two separate means of application, each operating on at least two wheels and each of which shall suffice to stop the vehicle within a proper distance. If these two systems are connected in any way, they shall be so constructed that the failure of any one part of the operating mechanism shall not leave the automobile without brakes on at least two wheels. One of these systems

shall be so constructed that it can be set to hold the vehicle.

"All such brakes shall be maintained in good working order and shall conform to regulations not inconsistent with this act to be promulgated by the commissioner of motor vehicles. Every motorcycle shall be provided with at least one brake which may be operated by hand or foot."

## Paul F. Sieving Made Moon Credit Manager

ST. LOUIS, Feb. 6—Appointment of P. F. Sieving as credit manager is announced by the Moon Motor Car Co. Sieving, who is well known in automobile circles throughout the country, was formerly credit manager of the Mack Truck branch in St. Louis, having advanced to that position after four years' work with the Mack organization.

For the past four years he has been connected with the accounting division of the Moon factory where he has served in several capacities, including that of traveling auditor.

### Hooey-ism

THE perfect mechanic is happy to work on the flat rate plan until he makes a decent living and then have the boss change the percentage.

## Compulsory Bill Asked for D. of C.

WASHINGTON, Feb. 7—A bill requiring compulsory automobile insurance for motorists of the district was introduced in congress this week by Representative A. T. Treadway of Massachusetts. Under its terms, no motorists may secure tags or registration unless one of three forms of securities in case of accident, is provided.

Three alternatives are provided in the measure under its insurance feature, the first being liability insurance with an authorized company, the second a surety bond payable to the district government and third, the posting of \$5,000 in cash or the equivalent in securities.

## Hub Dealers to Dine

BOSTON, Feb. 4—Plans have been started by Manager Chester I. Campbell, in charge of the Boston automobile show, to usher in the 1928 exhibition here with a big banquet the night before at which automobile, tire and accessory dealers will play a prominent part. This will be on March 9 at one of the big hotels.

Committees will be appointed next week to canvass the industry in Boston and vicinity, and officers of the club will select representative speakers from the trade.



## Pan-American Road Bill Passage Urged

Highway Would Connect U. S., Central and South America

WASHINGTON, Feb. 7.—The passage of the McLeod bill (H. R. 447), which would authorize the construction of the Pan-American highway, was urged last week before the House committee on foreign affairs by Mr. McLeod, author of the bill, and others. The proposed highway would begin in the United States at Detroit, proceed to Laredo, Tex., by the most direct route, thence through Mexico, through Central America, down the Pacific coast with a loop in South America, carrying the highway to the Atlantic coast.

Little construction in the United States would be necessary, Mr. McLeod told the committee. Colonel James T. Dedrick, South American engineer, outlining the problems of construction in that country, expressed the belief that the highway is not only feasible but is necessary. Colonel Dedrick asked the committee not to wait for the Second Pan-American Conference on Highways which meets at Rio de Janeiro next fall. "There have been conferences of that type since Henry Clay suggested the highway," he said, "and nothing ever comes of them."

Charles Jackson, president of the National Good Roads Association, also favored the bill. Representative Porter, of Pittsburgh, suggested that the way to get action on the project was to pass a resolution proposing that the President call a conference in Washington of all the countries of this hemisphere to formulate plans.

## G.M. of Canada to Reopen Large Walkerville Plant

DETROIT, Feb. 7.—The large Walkerville plant of General Motors of Canada, Ltd., which has been idle for four years, will be reopened at once, according to H. A. Brown, vice-president and general manager of General Motors of Canada, Ltd.

More than one-half of the plant will be put into operation as soon as new machinery is installed, the major portion of the space to be used by the Truck and Coach Division of General Motors products of Canada, Ltd. They will manufacture a thorough and complete line of General Motors trucks, bus bodies and cabs. Their space will be adapted to offices and to the manufacture of front axles for Pontiac and Chevrolet cars.

### Watch for It

NEXT week, after you have given up trying to determine who sent you the anonymous comic Valentines you received, keep your eyes peeled for the arrival of MOTOR AGE.

When the postman delivers it peel off the wrapper and look for the following special features:

"Meet and Beat the New Competition."

"Is Maintenance a Weak Link?"

"A Partnership That Began in Boyhood With Raising Pigeons."

"Follow-Up Proves A Sales Gusher."

The news of the industry and news features will, as usual, be live, interesting and in many cases amusing.

W. E. Davis, assistant general manager in charge of operations, has already arrived in Windsor and is supervising the installation of the new machinery and equipment and intends to have the plant in operation by February 1st.

Reopening of the factory will mean that the entire manufacturing of General Motors trucks will be moved from Oshawa to Walkerville and will provide more room at Oshawa for the extension of their divisions.

The manufacture of truck and bus bodies had never been undertaken at Oshawa, but will be carried on in the newly opened plant to the designs and specifications of Canadian Engineers.

It is also announced that H. H. Henchel, general sales manager of the Truck and Coach Division, and his sales and development staffs will remain in Oshawa, in closer touch with General Motors officials. Mr. Henchel's department has been making a close study of the transportation problems of various types of truck users in the Dominion.

## Lovejoy Price Down

CHICAGO, Feb. 4.—A price reduction of \$15 in Lovejoy Hydraulic Shock Absorbers was announced on the opening day of the Chicago National Show by Ralph S. Lane, president of the United Motors Service. The reduction brings the price of the Model J, used on the larger automobiles, to \$40 and the price of the "Baby Grand" to \$25 for a set of four.

## Demand for Nash Automobiles Heavy

Company Plans for Biggest Year; Sold 170 During N. Y. Show

KENOSHA, Feb. 3.—Sales figures for the New York Show just compiled and given out by The Nash Motors Co. plainly indicate heavy demand for Nash cars. One hundred and seventy cars bearing the Nash name-plate were purchased during the period of the show and every indication, according to officials of the Nash company, points to a continuance of heavy business at the motor shows to be held during the weeks to come.

In connection with the Nash sales at New York it is recalled that during the year just ended Nash went into third place in metropolitan New York, its volume being exceeded only by one six-cylinder car and by one of the very low priced four-cylinder cars.

"When the current line of Nash models was introduced, public acceptance was expressed in terms of enthusiastic approval, with the result that there immediately followed a series of record-breaking sales months," said E. H. McCarty, general sales manager of The Nash Motors Co. "Demand, far in excess of the factory's ability to meet, continued until after the general business recession in the late fall, and now with the advent of the motor shows and the return of business generally to a condition that is more normal, we are anticipating another big year."

## Hold American Used-Car Fair in France; to Repeat

WASHINGTON, Feb. 4.—The success of the recent American used car fair held in France has resulted in primary plans already being laid for the holding of another, but larger, fair from Oct. 4 to the 14th. In a report on the percentage to the automotive division of the Department of Commerce, its representative advises that while no figures are available as to what percentage of cars were sold, the fair was regarded as being very successful.

The fair was open to all kinds of motor vehicles, the primary consideration being that they be removed immediately upon their sale. The charges for space were calculated on engine power and ranged from 30 to 60 francs per day. Exhibitors could also engage space for the entire duration of the fair. Exhibitors consisted of automobile manufacturers, garage owners and private individuals.

## Intensified Retail Selling is Urged

Cadillac-La Salle Men Hear Echo of MOTOR AGE Campaign

CHICAGO, Jan. 31—Echoes of the MOTOR AGE campaign for more intensive retail selling, stressed by General Sales Manager H. M. Stephens at the Cadillac meeting during the New York Show, were heard at the luncheon of Cadillac-LaSalle distributors and dealers in the Lake Shore Athletic Club today. One hundred merchants attended the meeting.

L. P. Fisher, president of the Cadillac Motor Car Co., outlined the company's 1928 plans, analyzed the business forecasts for the industry, emphasized the need for more intensive retail merchandising and predicted that good business during the year would be secured only at the cost of harder work than ever.

Lynn McNaughton, vice-president, pointed out that the new LaSalle body styles and the new prices on both lines of cars combined to put the retailers in a more advantageous position.

Capt. E. V. Richenbacker, recently appointed assistant general sales manager specializing in La Salle, spoke of the factory's part in assisting distributors and dealers. He urged them to take advantage of the tie-up with the company in their used car activities. He announced that he was about to start on a visitation of all Cadillac distributors for the purpose of getting first-hand data on retail conditions.

W. W. Lewis, assistant general sales manager and director of advertising, told of the company's comprehensive advertising and sales development plans.

An impromptu reply for the distributing organization was made by Rollen Travis, Peoria distributor.

## A \$725,555,812 Tax

NEW YORK, Feb. 7—America's estimated total tax bill for motor vehicles during 1927 is \$725,555,812, according to the 1928 edition of the Motor Vehicle Conference Committee's bulletin, "Special Taxation for Motor Vehicles."

This bulletin contains a discussion of the principles controlling special taxation for motor vehicles and an analysis of the state taxes and fees on motor vehicle operation in force on Jan. 1 of this year.

This committee has also issued the 1928 editions of its bulletins, "State Regulation of Motor Vehicle Common

## Regional Manager



C. F. Farnsworth

Here's C. F. Farnsworth, Marmon's new regional manager for the East. Mr. Farnsworth formerly was president of F-H Motors of Montclair, N. J., and is exceptionally well qualified for his new duties through his intimate acquaintance with Eastern markets and merchandising problems.

Carrier Business," and "State Restrictions on Motor Vehicle Sizes, Weights and Speeds."

## Shutter Manufacturers to Advertise Cooperatively

NEW YORK, Feb. 4—Manufacturers of radiator shutters are proceeding with plans for cooperative advertising and sales promotion effort to develop increased business for their product. The feature of the campaign will be the advancement of the thought that every car needs a radiator shutter from October to May each year.

Companies cooperating in the movement are Allen Auto Specialty Co., Brewer-Titchener Co., Globe Machine & Stamping Co., Irving Engineering Co., J. C. McAdams Co., Metal Stamping Co. and Laminated Shim Co.

## Winterfront Net Gains

NEW YORK, Feb. 7—Pines Winterfront Co. reports net income for 1927 of \$404,211, or \$4.04 a share, on combined Class A and B shares, as against \$349,169, or \$3.49 a share, in 1926. Current assets were \$1,255,944 with current liabilities of \$254,754.

## German Addresses Peerless Meeting

New Manager Says Company Will Always be Mindful of Dealer

CHICAGO, Jan. 31—A new spirit of cooperation between the manufacturing company and the distributing organization radiated from the luncheon given today by the new management of the Peerless Motor Car Corp. to its distributors and dealers. C. A. Tucker, general sales manager, who is just as much at home behind a banquet table as behind a sales desk, acted as toastmaster in his usual felicitous fashion.

Leon R. German, the new general manager, scored a bullseye with the distributing organization when he declared that in all its policies, the company would always be mindful of the dealer—and his profits.

A picture of the present condition of Peerless was presented by R. M. Calfee, chairman of the board.

Fred Kast of the Firestone Tire and Rubber Co. contributed eulogies of the executives of the new management and told some appropriate stories that were not only good, but new.

The distributing organization was represented by talks from W. E. Butler, Chicago; O. A. Chillson, Indianapolis; S. H. Harrison, Fort Worth; Phil Brockman, St. Louis, and G. E. Baumgartner, Milwaukee. Frank James, of Sweeney and James, advertising counsel, delivered an inspirational talk on success. He rang down the curtain on the meeting in fine style with a parable about rumors.

Frederick van Fleet, advertising manager, did a Richard Bennett when he ballyhooed the stereopticon review of Peerless development since 1901. Yearly models were thrown on the screen, accompanied by strains of the popular songs that were the vogue while the respective models of Peerless were the vogue.

## World Congress Delegates

DETROIT, Feb. 6—Charles F. Kettering, president of the General Motors Research Corp.; Howard E. Coffin, vice-president of the Hudson Motor Car Co., and William B. Mayo, chief engineer of the Ford Motor Co., have been appointed as members of the American committee of the World Congress of Engineers, to be held in Tokio in November, 1929.

The appointments were made by Herbert Hoover, secretary of commerce, and honorary chairman of the World Congress.



## To Spend Million in Improvements

### Willys-Overland Toledo Plant Additions to be Made in 60 Days

TOLEDO, Feb. 7—Several plant additions which, together with equipment, will mean an investment of \$1,000,000, have been contracted for by the Willys-Overland Co., to be completed in 60 days so that the plant here may reach a maximum of 1550 cars a day production. The H. J. Spieker Co., general contractors, have started the work.

The company has approximately 20,000 unfilled orders on hand, notwithstanding production of more than 800 cars a day in recent weeks, it was announced by George M. Graham, assistant to President Willys.

"February and March are forecast as the best months in the company's history," said Mr. Graham. "The February schedule calls for 25,000 cars and in March we shall make 35,000 to 40,000 cars. We are taking orders at the rate of 1000 cars a day."

Plans were made to boost production to a thousand cars a day this week.

The company now has about 13,000 workers on the payroll.

### Rolls-Royce Passes Its Dividend on Preferred

SPRINGFIELD, MASS., Feb. 4—Directors of Rolls-Royce of America, Inc., have voted to defer the quarterly dividend of \$1.75 a share on preferred stock. The statement to preferred shareholders says:

"During the year your company was engaged in bringing out the 'New Phantom' car and a complete line of new coachwork. About three months' production was lost and sales suffered thereby, and earnings were materially affected.

"These radical changes in our manufacturing program were, however, accomplished without operating loss and a profit over bond interest was made, but at the expense of our cash position. The final figures for 1927 are not yet completed, but as soon as possible will be sent you.

"With this behind us and with the new car giving the utmost satisfaction to those who have received it, we look forward to a satisfactory year in 1928."

### Hub Goodrich to Move

BOSTON, Feb. 6—B. F. Goodrich Co. plans to move from its present location on Boylston St. to the building it occupies as a warehouse on Ipswich

### Radio to Connect Goodyear Plants

AKRON, Feb. 6—Goodyear Tire & Rubber Co. is the second tire company to realize the economic possibilities in short wave radio transmission between its subsidiaries and the home office. Hearings were held on a recent date by the Federal Radio Commission on their applications for four stations at Akron, Los Angeles, Wolverhampton, Eng., and Sydney, Australia.

Firestone Tire & Rubber has already been granted a permit to operate between Akron and its Liberian plantations.

St. Later on plans will be drawn for the erection of a new building combining sales, executive and storage facilities.

### N. Y. Taxi Associations Will Fight License Fee

NEW YORK, Feb. 8—The Broad Street Taxi Owners' Association and the Five Borough Taxi Association have started injunction proceedings to restrain Police Commissioner Warren and Deputy Commissioner Ruttenberg, in charge of the Taxicab Bureau, from exacting a license fee of \$10 for taxicabs in place of the present \$5 fee.

A city ordinance providing for the licensing of cabs and coaches designates as a coach, "a public hack so designed and constructed as comfortably to seat, in the opinion of the commissioner of licenses, four or more persons," and the fee for a coach under the ordinance is \$10.

The taxicab associations contend that probably 2000 or more of the 20,000 taxicabs on the streets are small vehicles and cannot comfortably accommodate four persons.

### Bus Terminal on Roof

NEW YORK, Feb. 6—Suburban buses operating into New York will be able to make direct connections with the Sixth and Ninth Ave. elevated lines, when a new garage now being erected at Eighth Ave. and One Hundred and Fifty-fifth St. is completed. This garage will have a bus terminal on the roof at the level of the One Hundred and Fifty-fifth St. viaduct, and buses will be able to enter and leave the terminal at the viaduct. Their passengers will thus be able to make elevated railway connections from the bus.

## duPont Net More Than 41 Millions

### \$28,941,597 Earned From Equity in General Motors

NEW YORK, Feb. 4—E. I. duPont de Nemours & Co. reports net income for 1927 of \$41,113,968.36, or \$15.45 a share, applicable to no par outstanding common stock, as compared with \$37,119,164.45, or \$13.98 a share in 1926.

The financial statement shows earnings from equity in General Motors investment of \$28,941,597.77 as compared with \$23,621,946.58 for 1926. Total gross assets amount to \$351,440,262.47, of which investment in General Motors stock and other controlled companies aggregate \$175,726,737.64.

DuPont company's holdings in General Motors Corp. common stock aggregate 3,998,488 shares, and together with its equity in holdings of General Motors Securities Co. constitute 22.94 per cent of the entire amount. Stock of General Motors and other of duPont company's investments in General Motors Corp. was adjusted on the books in March, 1927, to \$119,774,640.

The company's volume of business for the year 1927 was about 10 per cent larger than the previous year.

### Eleven Methods Used in Assessing Registration

WASHINGTON, Feb. 7—A survey just made by the American Automobile Association shows that there are 11 methods used by the 48 states in assessing registration fees on private passenger automobiles.

"Seventeen states base the rates on horsepower; fourteen states on weight; seven states on horsepower plus weight; one state on a flat rate per car; one state on the cost of a motor vehicle; one state on a cubic inch displacement; one state on value plus weight; one state on value; three states on a flat rate plus weight; one state on selling price plus weight and horsepower, and one state on the manufacturer's list price."

### Gates Moves Branch

NEW YORK, Feb. 3—Gates Rubber Co. has moved its eastern branch from Jersey City to the Hoboken Terminal Building in Hoboken, N. J. This new warehouse has improved rail and water facilities, more space and is expected to result in more efficient service to eastern customers. A. J. Ockelmann is branch manager.



## Gas, Oil and Hot Dogs—Drive In

THE special Stutz racing car which Lockhart will drive on Daytona Beach in an attempt to beat the world's speed record will have the engine cooled by ice cubes instead of using a regular radiator. A cake of ice at the front of one's engine is not so strange in some states, at this time of year, but this job should prove an innovation for Florida.

A recent conference, possibly resulting from the Ford situation, has been active in urging *two-brake laws*. Since prohibition it has hardly been necessary to urge anyone to *break laws*.

Ad in western paper: "For Sale—I want to get rid or dispose of to a responsible party for a price my garage and filling station, which is for sale at a reasonable price." Probably wants to sell his garage and filling station—at a reasonable price, of course.

Fifty-nine different bills for compulsory automobile insurance are now before 25 state legislatures and Congress. As if the motorist didn't have enough bills without having two more than the 57 varieties.

"Yes sir," says C. Edward Packer, our Technical Editor, "at last we're a two-car family. I have the Essex and my wife has the street car."

An investigation discloses the fact that high priced cars are preferred in Mexico. The same condition prevails in this country—if you can afford them.

The operation of a traffic signal by the mere blowing of a horn on the approaching car has been tried out in Baltimore. This is a concrete example of how one can "horn in" in traffic.

A western state recently required horse-drawn vehicles on the road after night to carry a lighted lantern "where it would be the most effective." An indignant farmer who was run into by a motorist explained that he had been carrying the lantern under his lap robe as it was most effective there.

In Sydney, Australia, one of the largest taxicab companies is going to sell its 148 cabs to its drivers. That looks like a good way to check wild driving.

At the present time the rubber market is reported as being very quiet. Well, that is what rubber is for.

A large department store in Hartford, Conn., now operates a special car to pick up patrons. Probably copied the idea from the police department.

### John Cleary Says—

*It will be a wonderful year for the automotive business, no doubt of that.*

*All the optimistic predictions made before the dawn of the year have been borne out by the attendance and interest at the shows so far held.*

*But don't let this expectation of big business lull you into a somnolent condition of false security.*

*It may be a record-breaking year for the industry—and just another twelve months for you.*

*And if you and the other dealers don't go out actively after the business, it won't be a record-breaking year for the industry.*

*The smart dealer will assume that he will have to create his own prosperity.*

*The year will prove more profitable for the intelligent pessimist who is active than for the over-sanguine optimist who is passive.*

# Ist Das Nicht Ein Schnitzelbank?



Ja das ist ein Schnitzelbank! Or, to be specific, it is a wooden signpost, executed in the wood carving school at Bad Warmbrunn, Germany. Many such odd signs are being used in Germany to direct motorists and travelers.

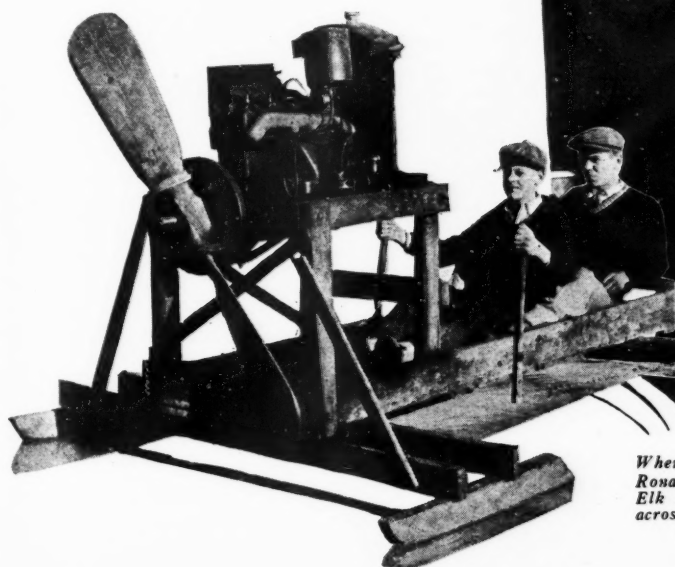
At left, behold a night view of the new Detroit branch building of the Buick Motor Co. during the recent opening celebration.



At right: Two men and Knute Rockne. The two men are Joseph B. and Ray Graham of Graham-Paige Motors Corp. This exclusive photo was taken after the Graham-Paige luncheon at the Book-Cadillac Hotel in Detroit on Jan. 26.



Photo by  
Lee F. Redman



When is a Ford not a Ford? When it's an iceboat. This one belongs to Ronald Ringsrud (at the controls), son of A. H. Ringsrud, Ford dealer at Elk Point, S. D. To the Ford engine is attached a propeller five feet across, made of five sections of spruce. The boat attains a speed of 35 miles an hour.

# FUNDAMENTALISM

## *In the Automobile Business*

**Q** *National Automobile Dealers Association Members Urged by Paul G. Hoffman, Studebaker Dealer and Factory Official, to Practice the Fundamentals of Retail Management and Selling*

**F**RED VESPER is broadcasting from Station NADA in the red lacquer room of the Palmer House. It is Wednesday evening of Chicago Show Week.

"Our first speaker," says Fred, "is an automobile dealer, and a successful one. He knows the automobile business from the dealer's angle. He will tell us what the dealer thinks of the factory. Gentlemen, it gives me great pleasure to introduce Mr. Paul G. Hoffman, president of the Paul G. Hoffman Company, Studebaker distributor in Los Angeles, California."

The handsome youth at his right arises, bows smilingly in response to the ovation accorded him, speaks interestingly and instructively on the subject assigned and sits down amidst loud applause.

Fred Vesper is at the "mike" again.

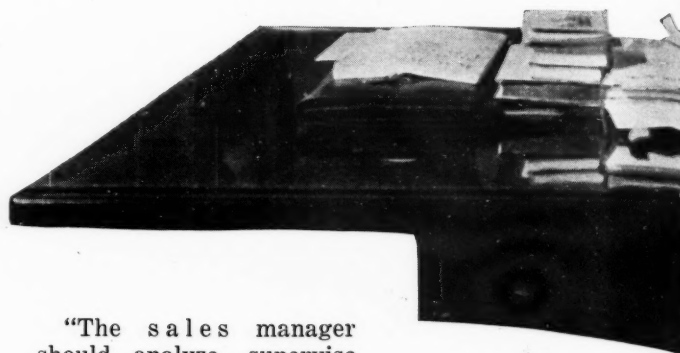
"Our next speaker," says Fred, "is an automobile factory executive, and a successful one. He knows the automobile business from the factory angle. He will tell us what the factory thinks of the dealer. Gentlemen, it gives me great pleasure to introduce Mr. Paul G. Hoffman, vice-president of the Studebaker Corporation of America, South Bend, Indiana."

The handsome youth at his right arises, bows smilingly in response to the ovation accorded him, speaks interestingly and instructively on the subject assigned and sits down amidst loud applause.

It was clever, no end, on the part of N.A.D.A. officials, to have Paul Hoffman address the annual banquet of the association in his dual role of manufacturer and distributor. And it was equally clever, on the part of Mr. Hoffman, to refrain from elocutionary fireworks and other oratorical tricks, and to confine himself to comprehensive summaries of the fundamentals of retail management and selling, the present importance of which has been emphasized in every issue of MOTOR AGE during the last eight months.

"Get the facts; if you don't the facts will get you." This was the keynote of Mr. Hoffman's remarks. He talked at length on sales management, used car merchandising, shop management and commercial management.

"It has become the custom," he said, "to think of the automobile salesman as emulating that well-known character, Sitting Bull. But I am inclined to believe that it is just as proper to think of many a sales manager as emulating that other well-known Indian, Growling Bear.



"The sales manager should analyze, supervise and inspire his men. He should educate them, tell them how to do it.

"The most important single item in successful sales management is the salesman's daily report. It is possible to get honest reports.

"Discipline is an important factor. Only a well-disciplined sales force gets satisfactory results. Salesmen should be trained to keep their appointments punctually. Many thousands of sales are lost annually because of laxity and looseness.

"The sales manager should know his men intimately and handle them tactfully and intelligently. The sales manager who says that he cannot get good salesmen is thereby indicting himself.

"There is no such thing as a used car problem, as a generality. There is a used car which will be a problem, unless you buy it right, condition it properly and merchandise it aggressively.

"One word which you should cast out of your business vocabulary is 'appraisal.' You are not 'appraising' the used car. You are buying it. The very word 'appraisal' exaggerates the value of the used car in the eyes of its owner. Let him know that you are buying it, not appraising it.

"The dealer who does not demonstrate his new car to the customer before getting into any discussion about the used car is not a merchandiser.

"Buy used cars you can sell.

"No dealer ought to have more than a 30 days' supply of used cars on hand.

"Condition the used car immediately. The used car owes you money. Get it in shape, and get it back on your salesroom floor.

"You should have a separate department for used car conditioning, even if it is only a line painted on the floor of your repair shop.

"Use plenty of paint.

"Display your used cars in a clean, well-lighted, well-painted room.

"The aggressive merchandising of used cars begins with honest pricing.

"In the advertising of used cars, I am inclined to believe that dealers will find it advantageous to use display space in the newspapers, on account of the present overcrowding of the classified columns.

"Have a few simple rules, making for efficiency and profit, in the management of your shop, and see that these rules are faithfully carried out.

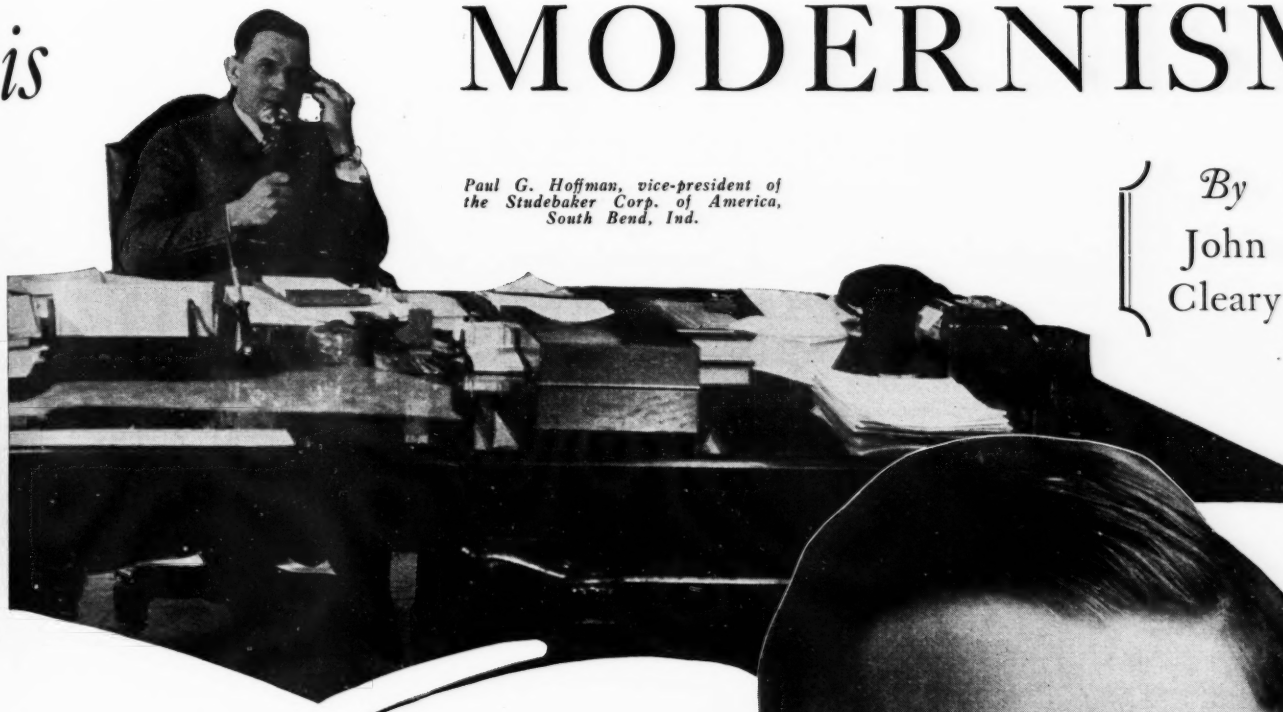
"As regards commercial management, the vital neces-



# MODERNISM

Paul G. Hoffman, vice-president of  
the Studebaker Corp. of America,  
South Bend, Ind.

By  
John  
Cleary



sity for more intelligent attention to this phase of your business is borne out by the fact that not more than one-third of present-day dealers are pilots of their business ships. The other two-thirds are passengers.

"Your business should be budgeted. There is no deep mystery about accounting. You should certainly know the how, the why and the where of your profit or loss, and a simple bookkeeping system will give you that information."

Mr. Hoffman was followed by Humorist J. Adam Bede, former Congressman from Minnesosta, who told some jokes in the forensic manner.

At the beginning of the banquet William L. Hughson, retiring president, turned the gavel over to the new president, C. C. Coddington, and was presented with a gold plaque in recognition of his services. Mr. Coddington then handed the meeting over to Fred Vesper, who acted as toastmaster.

The dinner rang down the curtain on the two-day program of the eleventh annual convention of the National Automobile Dealers Association. Three hundred distributors, dealers and others interested in the manufacture and distribution of automobiles.

A method whereby the loss per used car is reduced to a minimum and a definite net profit is assured on each new car-used car transaction, was outlined by P. E. Sands, Seattle Studebaker dealer.

Mr. Sands pictured the constant rise in the number of used cars handled per new car sales in his business, and stated that during 1928 there is every reason to believe dealers will handle two used cars for every one new car sold. To make a profit under these conditions, Mr. Sands believes, a dealer must set up a definite control of all factors in his business and stick closely to this control, or he is sunk.

The used car was also discussed by C. A. Vane, general manager of the association, and M. D. Graham, of the Automotive Equipment Association Greater Market Development, the latter of whom stressed the importance of after-market profits as an offset to used car losses.



Paul G. Hoffman,  
president of the  
Paul G. Hoffman  
Co., Studebaker  
distributor, Los  
Angeles, Calif.

The composite analysis of the business of 100 dealers in various parts of the country, presented by Edward Payton, market analyst of the association, tended to show how used car losses are equivalent to a depletion of the dealer's capital. The figures demonstrated, he said, that some dealers are investing more money in used cars than in new car stocks, and that dealers are virtually giving away \$156 with every new car that they sell.

(Turn to page 27, please)



C. C. Coddington  
newly elected  
head of N.A.  
D.A.

# Who is Coddington?

*Answering a Question That N. A. D. A.  
Members May Be Asking One  
Another About Their New  
President*

By J. A. Daly

**A**S old in the automobile industry as is the industry is C. C. Coddington, of Charlotte, Buick pioneer in the Carolinas, who is the newly elected president of the National Automobile Dealers Association.

The vast horde of automobile dealers, almost all of whom have come into the business since the day Mr. Coddington started his business here from taw, perhaps want most to know what manner of man he is. In a sentence, he is regarded by those who know him best as a "strictly business" executive who delights in showing kindness to his employees; a man who is reasonably quick to make up his mind and indomitable when a purpose is fixed.

Mr. Coddington has a beautifully appointed, large office. His residence is a mansion that was built by the late James B. Duke, multi-millionaire tobacco magnate. His playground is a large estate on the coast of North Carolina, near the resort town of Morehead City. His chief business interest is increasing the popularity of the Buick automobile, and his outstanding civic interest is in contributing to the development of means for nationally advertising his home city of Charlotte, N. C. He manages to keep himself so busy that it is exceedingly difficult to find him in his office, for his business affairs are many and require of him much travel to and from the East and North.

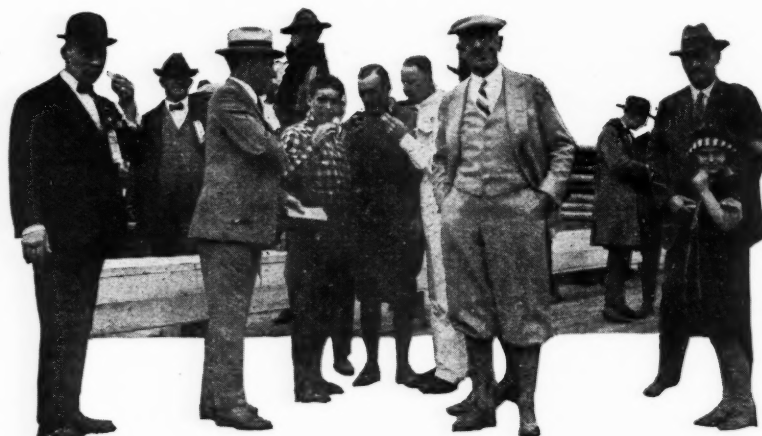
Two things particularly worry Mr. Coddington

exceedingly—one is an evidence of fear that may be shown by the caller at his office, for Mr. Coddington has not let his heart be hardened by his accumulated wealth and he delights in remaining close to mankind; the other is anything savoring of double-dealing, for Mr. Coddington fights hard when occasion requires but he always fights fairly and thus has won and holds the respect and admiration of the community.

All has not been rosy and prosperous in Mr. Coddington's life, and there remains in his mind a vivid memory of the days of long ago when, as a youth in his early twenties, he tramped the sidewalks of New York as a newspaper reporter, and in those days the problem of providing himself with footwear was a serious one.

"Get into some business for yourself" is his advice to the young man. He set that goal for himself when he tired of contemplating a reporter's prospects. The business that he got himself into now is the greatest one of its kind in the rich Carolinas, which two states possess almost 550,000 motor vehicles instead of the very few possessed in 1909 when he launched his then

little enterprise upon what appeared to be a precarious adventure. Buick was three years old when Mr. Coddington brought the now famous valve-in-head motor into the Carolinas. As Mr. Coddington has said, those were the days when "we were just beginning to bestir ourselves from our bed of rich



On the race track at Charlotte which he helped to build. The second pair of legs from the left belongs to Mr. Coddington



and deep traditions" and days when a few men looked far into the future and caught the vision of a new and mighty industry of transportation. The aim of Mr. Coddington, founded upon his vision of the automotive industry of the future as he then saw it, became service, for he felt that whatever success he could attain would be the answer to his service.

In a year, the business of C. C. Coddington outgrew its first quarters and increased facilities for sales and service were obtained. Mr. Coddington was being proved in those days when the automobile was being proved, and the man and his business grew as the Carolinas were led by such men as he is from the grip of the remaining pre-Civil War traditions. In 1916 his business again moved through necessity, having again outgrown its quarters. Two years ago, this company entered its present building, which Mr. Coddington described as "the largest building devoted to the merchandising and servicing of a single product in the South."

Accomplishment can be attained best only when work is done through frictionless channels, in the opinion of Mr. Coddington, and that is one reason why he insists upon his large organization carrying out strictly the general policies he outlines. There is no touch of extravagant showiness in his nature or in his business, and he studiously avoids surrounding himself with formality and red tape. Yet he oftens emphasizes his opinion that the organization is the thing, and the success of his business will reflect his success in building an organization to represent him in the contacts with the public buying, or desiring service for, automobiles.

Personally, Mr. Coddington is shy when a matter of being brought into the public notice is concerned. He shuns newspaper mention of his name whenever possible, and thereby often throws newspapermen into quandaries by his civic enterprises, such enterprises that would be the subject of extended comment by the average good citizen. Inspired by his vision of what the future held for radio, he gave the town a few years ago a radio broadcasting station which now represents an investment of approximately \$100,000 of his money. About three years ago he put a great sum of money into a \$400,000 pool made up by his friends here to build a speedway for motor car races and that investment, all of which and more has been lost, was made, in so far as he was concerned, for the sole purpose of creating a medium for advertising this community for the benefit of all.

Mr. Coddington is financially interested in a large way in various corporations. He is vice-president of the McClaren Rubber Co. of Charlotte; director of the Ajax Rubber Co., Racine, Wis., and and director of the Union National Bank of Charlotte.

Mr. Coddington is a man of iron gray hair, calm, piercing eyes, a ruddy complexion, imposing stature, brisk, decisive manner, a companionable, delightful host, and an interesting, well-informed conversationalist. His acquaintanceship is country-wide.

That is a word picture of the man who will direct the destinies of the organized automobile dealers of America for a time, and during a time when their many and great problems give them cause to hope for much of accomplishment through the vision, activities and leadership of their chief executive.

## Fundamentalism is Modernism

(Continued from page 25)

"The Salesman and the Used Car Problem" was the subject of an inspirational talk by W. B. Burruss. He lamented the growth of the competitive spirit in automobile salesmanship. In consideration of what he described as the underpaid condition of automobile salesmen, he urged changes in the present methods of compensation and suggested old-age pensions, insurance and special compensation for long-term employment.

An interesting feature of the session was a thorough discussion of the cooperative used car salvage yards now operated by many dealer associations. Methods used in Omaha, Milwaukee and Kansas City were explained by A. B. Waugh, F. A. Cannon and George Bond, dealer association managers in the cities named.

Since its inception, March 7, 1927, Omaha took in and junked 402 cars, for which an average of \$10.76 was allowed dealers. Sales of used parts ran from \$704 per month to \$1,581 per month, these sales being made to the public and garages in Omaha, for the most part. Omaha dealers feel certain these sales do not interfere in any way with new parts sales, the customer in each case being of the type who would go to a junk yard for his parts if the dealers' salvage yard was not in operation.

The Kansas City dealers' salvage

yard will do a gross volume of \$200,000 during its first year of operation, at a profit, according to Mr. Bond, and Mr. Cannon said that the Milwaukee yard had, to Dec. 31, sold \$9,948 worth of parts, tries to the amount of \$1,922 and scrap that brought in \$5,643. The average price paid for "junkers" at the Milwaukee yard was \$10.66, with 1025 cars have been taken in up to Jan. 31.

Ralph Sandt, of General Motors, told the dealers that this corporation is watching the junk yard operations with an open mind, and is very much interested in developments as a possible aid to dealers in handling their used cars.

The following officers were elected: C. C. Coddington, Charlotte, N. C. (Buick), president; Warren E. Griffith, Toledo, O. (Chrysler), first vice-president; J. R. Histed, Chicago (Hudson), second vice-president.

The following directors were re-elected to the board: Joe G. Roberts, Philadelphia (Nash); John E. Smith, Atlanta (Chevrolet); Frank J. Edwards, Milwaukee, (Dodge); J. T. Stewart, Omaha (Hupmobile); R. V. Long, Indianapolis (Hudson); P. H. Greer, Los Angeles (Chrysler and Hupmobile); James P. Harris, Charlotte, N. C. (Nash). Dean Schooler, Des Moines (Oakland), was elected a new member of the board of directors of the association.



Warren E. Griffith, Toledo, elected first vice-president of N.A.D.A.



# *Don't* WHIP *the* Salesmen!

*Lead Them With Common Sense, Says Larkins in  
Defense of the Industry's Key Men*

By F. M. Larkins

*Manager, Used Car Department, Dalley-Jennings-Graham Corp., New York City*

THE question arises so often and so much is written about the automobile salesman's shortcomings, that it would seem he is a subnormal individual of known bad habits and devoid of any intelligence. Various commentators have gone to great length to dissect the average salesman into component parts of mental laziness, physical laziness, ineptitude, stupidity, braggadoccio, disability, childishness and infected tonsils. And behold the great example to prove their case: J. Harriman Steele, the great industrial chemist, who is rated at \$100,000,000, tells the writer that no salesman has called on him to propose the purchase of an automobile in three years, proving conclusively that all automobile salesmen were born dead!

It is this line of reasoning that leads to so many erroneous conclusions. J. Harriman Steele, all puffed up in his pride for the self-made man, is the prospect. An ambitious salesman calls at his office where Secretary No. 3 tells him that if he will fill out a blank stating the nature of his business, it will receive careful attention from Secretary No. 2. After an hour's wait, Secretary No. 2 reports that Mr. Steele is a very busy man and suggests he leave a card for filing in the waste basket. Being duly impressed with the necessity of getting by the barricade, the salesman sets about to get by Secretaries 3 and 2, and plans to ride roughshod over No. 1. He plans his battle, he phones, writes personal letters, scours for someone who will, as a personal favor, secure him entree and at the end of two weeks crashes the citadel. J. Harriman Steele hears his careful peroration and suddenly recalls that he is late for the meeting of the directors of the bank and, advising the salesman to get in touch with him later, violently retreats to attend that very opportune meeting. The salesman hangs to his prospect like a tail to a kite, stalks him like an Indian, lies awake nights to plan some way to trap the elusive J. Harriman Steele, but now the citadel is fortified against him and the secretaries dare not let him pass on penalty of losing their jobs, particularly this afternoon when J. Harriman Steele is telling the reporter what is wrong with automobile salesmen.

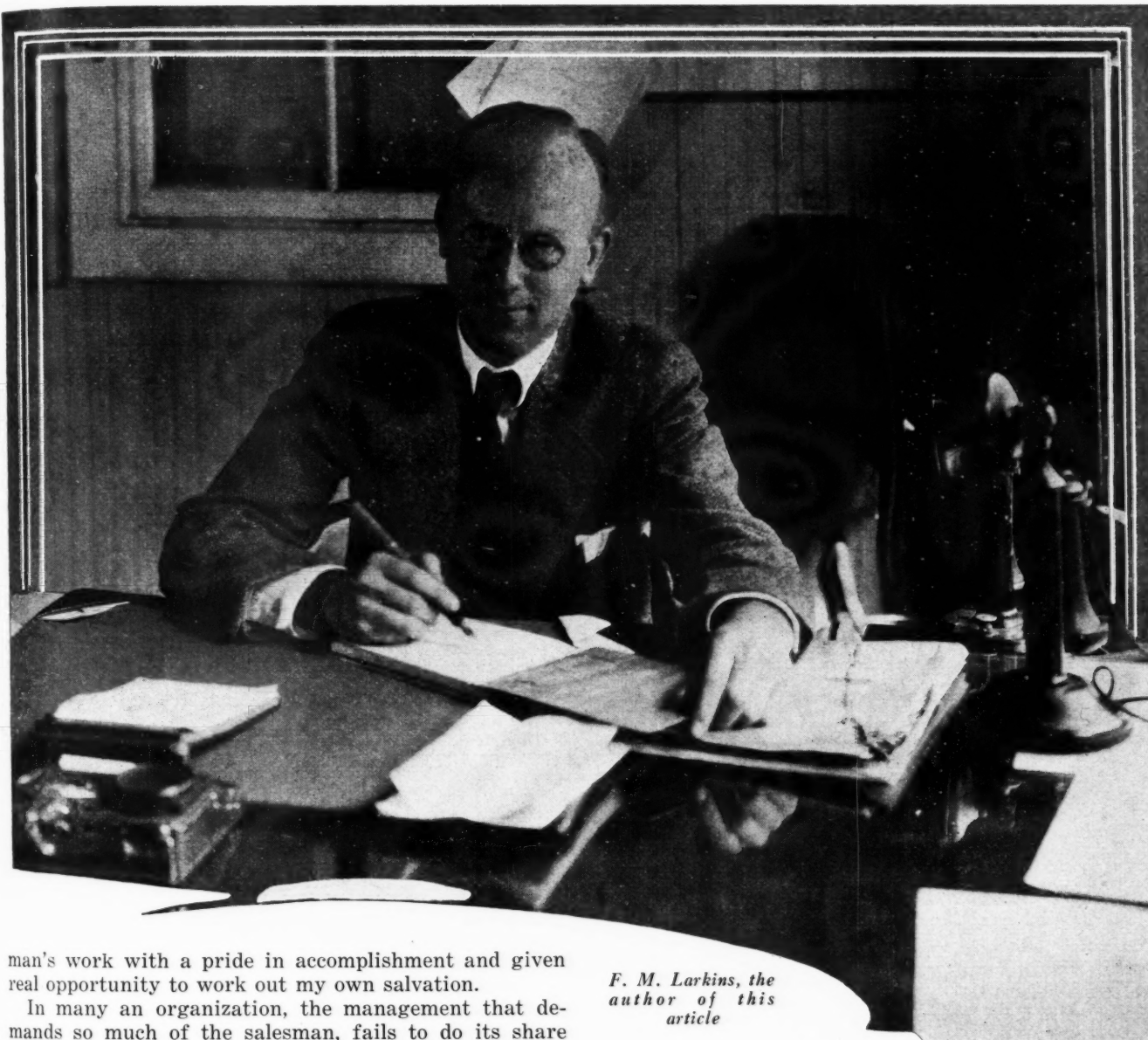
And right there an ambitious salesman makes a sound resolution. The pride of selling J. Harriman

Steele is small recompense as against net commissions earned on sales to plain John Doe.

One or two similar experiences and maturity of judgment comes to that salesman. He has qualified for his vocation with selling ability, a knowledge of his product and of the motor field, a keen desire to succeed and prosper, and a store of practical horse-sense. He has small time for play because he has responsibilities and competition is keen. He willingly will devote more hours per week to his job than the man at the desk, at the bench, or behind the machine. Time is his precious material, but it must be utilized with judgment and the man who will cause him a flagrant wastage of his time is depriving him of his livelihood. Sales managers may rant and point out the horrible example of the missed sale on J. Harriman Steele, but the seasoned man will probably smile and hand the boss a couple of perfectly good orders, one from John Paluso and one from Ignatz Kikronowitch, and add that John's uncle will be in line within 10 days.

If you think this exaggerated, just go over your delivery list and pick out the names of the big shots and list against that the legion of John Does. Of the 22,000,000 cars registered, how many are listed by men in prominence as contrasted with the number of Smiths and Jones and Browns?

It might perhaps do well to turn the light on sales management to detect any relationship here that has bearing on the accomplishments of the salesman. In many organizations every day begins with a sales meeting. The dealer or his sales manager snaps the whip and applies the pressure. The salesman who left his home exuberant and friendly with the world wilts bit by bit and sullenness creeps in. His naturalness deserts him and he becomes a prototype of what that dealer wants: a fighting, snarling man. Or perhaps each morning he gets a shot of Pollyanna dope. He must be charged before being turned loose for the day's work. Well, I enjoy a sermon on Sunday if it isn't too long, but if I got a sermon every day it would pall on me—like dope it would need stronger and stronger portions to arouse me. A salesman's essential need is naturalness and enthusiasm; the constant whip steals it away. No sales force in the industry needs sermonizing every day, and I prefer to be taken as a man capable of a



*F. M. Larkins, the  
author of this  
article*

man's work with a pride in accomplishment and given real opportunity to work out my own salvation.

In many an organization, the management that demands so much of the salesman, fails to do its share toward building esteem, confidence, pride in the salesman toward his employers. Alas, too often, the salesman has to watch his commission slips like a hawk because of omissions or David Harum deductions for this, that or the other. He plans his budget on getting his commissions on the first and the fifteenth and then is paid three or four days a week late without regard to his needs. When expansion takes place, too often some glib outsider is brought in to handle the bigger job whereas the promotion of one of the force capable of handling the job would balance the organization better and encourage every man to work the harder that he might build the better.

Still another familiar and favorite recipe is to watch carefully that the salesman doesn't make too much money. The way to stop that is to employ double the men, and work on the multiplication theory—if 10 men sell 500 cars, 100 will sell 5000 and 500 will sell 25,000.

In other organizations there is lack of leadership, as besetting a sin as the over-emphasis of driving and high pressure.

I have confidence that the automobile salesman of today need not give ground to any branch of the selling profession. What he needs is simple: Management that takes him into its confidence, that will set sound policies for him to work on, assist in sales by constructive sales promotion work and apply common sense,

not a whip, to its leadership. What could be easier?

Now it may be a matter of pride to have J. Harriman Steele own the Panther Six, but it is more essential that the healthy volume of business be secured and normal growth accrue. So it is not in the ornate offices of the industrial magnate that the veteran spends his day, but in doing the round of the Smiths and the Joneses. It is the artisan of the trades, the policeman, the teacher, the shop keeper, the doctor, the merchant, the milkman and their families who provide the Kimberley diamond field that he works.

How well the automobile has been sold is best told by 22,000,000 registrations and the elimination entirely of that bugaboo once known as the saturation point. Those 22,000,000 didn't sell themselves. Lazy men didn't sell them, inferior men didn't. They were sold by a great organized group of loyal, industrious men who take pride in their calling and who are giving sincere efforts to honestly merchandise a great product, the automobile. They have so sold transportation and the utility of the automobile that today the product they represent has become the dominant industry of this country. The accomplishment of their sales has paved the way for the rapid development of the automobile, and has helped the entire cycle of improved living.

The automobile salesman is doing his job.





*The State House at Boston, Mass., where the first compulsory automobile liability insurance law was passed*

# What Slice \$600,

*It Will Cost Motorists If  
Adopted by All States.  
Massachusetts' Experi-  
ence Gives Law Makers  
and the Automotive  
Trade Some Things to  
Think About*

By  
George T. Hook

**I**F you are prone to view matters broadly, it will not be difficult to convince you that compulsory automobile liability insurance—one of the most important questions relating to motor vehicle legislation considered by state legislatures in recent years—seems to fall in the new competition classification along with radios, electric refrigerators, etc. It falls in effect, that is, for it is estimated that such insurance, if anointed with the approval of all state legislatures in these United States, would result in the handing over of \$600,000,000 annually to our insurance companies.

Not that that bagatelle represents an amount which insurance would divert from automotive channels; by no means. It would take an accredited prophet of the Old Testament school with an affixed C.P.A. rating to figure the actual loss to the industry. But that a loss would accrue can hardly be denied. That is because the average motorist operates on a budget wherein \$50 or \$75 per annum is a sum that covers a multitude of operating and maintenance expenses. If a state law compels him to John Henry a check in either amount to meet a premium, an economic law constrains him to make up for the expense—at the expense of the trade, very likely. He does without accessories; he makes his tires last longer; the preventive maintenance job he could otherwise have been sold is put off "until another time," a time that may never come; the car laundry gets fewer wash and lubricating jobs, and repair bills—more likely than not—go unpaid for longer periods than usual.

Thus might the automotive trade suffer.

Yet in the controversies almost certain to ensue within the geographical precincts of commonwealths when compulsory insurance laws come up for legislative consideration, it is not even remotely possible that the problematical loss to the trade will be a factor in influ-





# Compulsory Insurance?

## 000,000

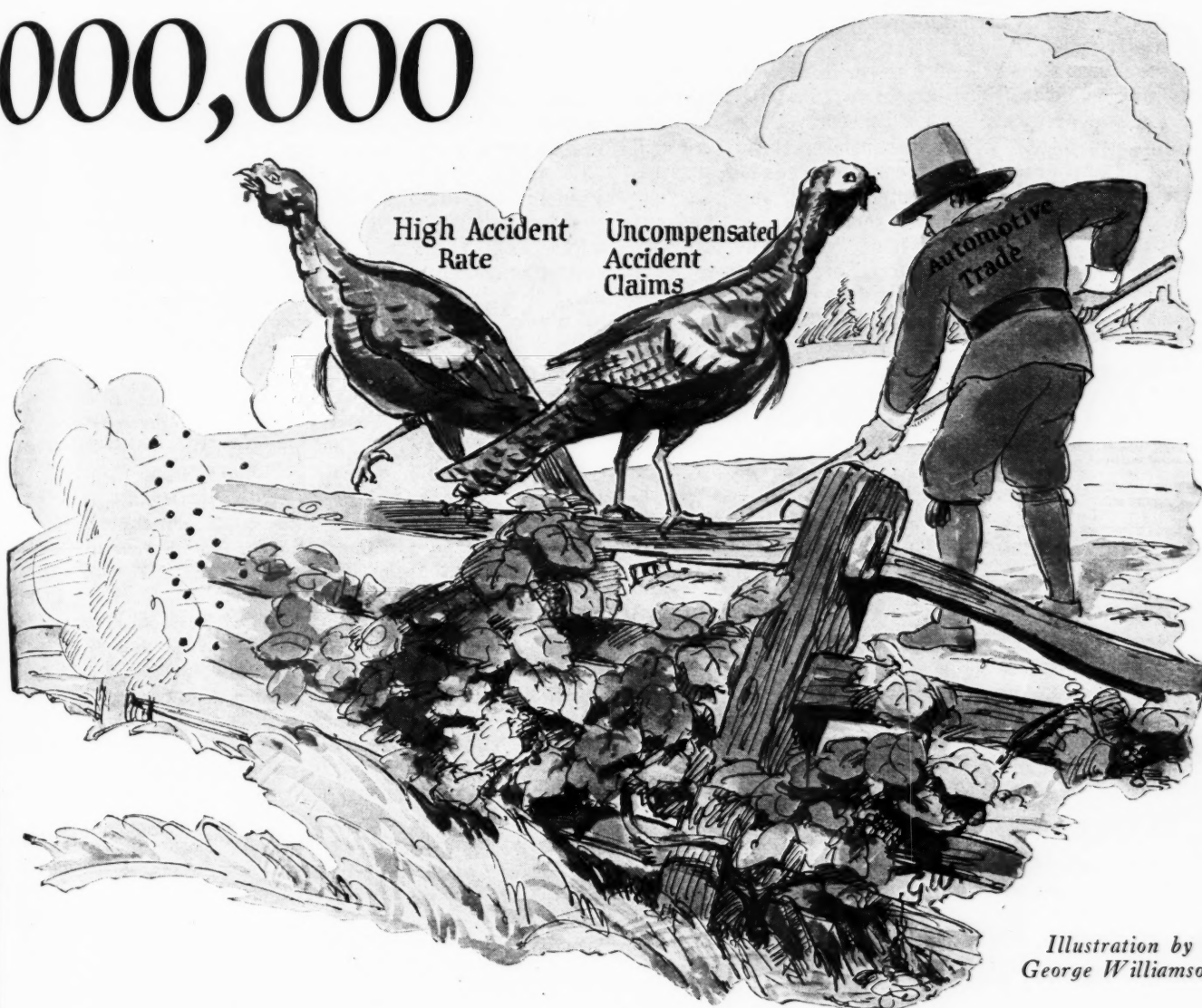


Illustration by  
George Williamson

encing the ayes or nays of law makers. No such mercenary element enters into the question.

The aims of compulsory insurance proponents are, you might say, twofold humanitarian:

1. To provide monetary compensation for injuries to persons or damages to property caused by motor vehicle accidents.

2. To reduce accidents.

Undeniably the aims are worthy. Even the opponents must approve them. But, while approving, they appear to be in hearty agreement that the means to the end does not inherently possess the wholly salubrious effect one might expect after hearkening to the encomiums of the favorers. Pointing to Aim No. 1, those still ill-disposed toward the measure indicate that it implies litigation. Court calendars already are clogged with claims arising out of vehicular accidents, and only a portion of the car-owning public is now included among the automobile liability clientele of underwriting companies. If the number of insured is increased to include every car owner in the country, it is unquestionable that the law of averages will see to it that there is a pro-

portionate increase in the number of accident claims.

It is easier to admit than to dispute the law of averages, so there has been some talk among compulsory insurance proponents favoring the establishment of state arbitration boards to satisfy the claims of compulsory insurance policyholders. That smells suspiciously like a tacit indictment of the accident reduction aim, No. 2, but in reality it isn't.

The moment is ripe for a parenthetical explanation to the effect that proponents of the law now declare that it never was urged as an accident preventive or palliative, and that for such distortion of the truth the opposition is responsible. But just the same one state official holding the legislation in high esteem has declared that while the "law does not have safety as its purpose," nevertheless "it is the greatest piece of safety legislation ever passed." Wherever lies the responsibility, the fact remains that states considering compulsory insurance legislation are giving attention to the secondary aim, it being contended that the law should help the safety movement in two ways: first, because unfit drivers will be refused insurance and therefore

## WHAT SLICE COMPULSORY INSURANCE?

will be unable to operate cars; second, because under the law more extensive and detailed reports on accidents are required, which should add to knowledge of causes and thereby point the way to corrective measures. Hence the accident aim deserves to be taken and considered seriously.

Massachusetts, as is well known, is the only state in the Union which to date has in force a law requiring all owners of privately operated motor vehicles to carry liability insurance. While authentic statistics are still lacking, it appears to be generally conceded that a reduction in accidents was effected during the last year in the Bay State. But equally general is disagreement over placing of the credit where it is due. Acolytes who serve at the altar of compulsory insurance have claimed for it the honor, while proselytes of the opposition sceptically have pointed to the fact that during the year an intensive safety drive, led by Governor Fuller, penetrated to every hamlet in the commonwealth. Back of the drive was a state-wide organization divided into groups comprising state and municipal officials, fire and police departments, school teachers and school children. The result was that a people no longer concerned with the fate of Sacco and Vanzetti had its attention focused upon safety. Parades were held with horrible examples of smashed cars carried on trucks, and cities and towns vied for the silver loving cups put up by His Excellency the Governor.

The result was a reduction in accidents, but was it due to compulsory insurance or to the campaign? The matter remains moot.

Let us elaborate upon the Massachusetts angle with the help of the report of the Motor Vehicle Conference Committee, whose membership represents the National Automobile Chamber of Commerce, the National Automobile Dealers' Association, the Motor & Accessory Manufacturers' Association, the Rubber Association of America, and the American Automobile Association.

The law compelling all owners of privately owned motor vehicles to carry liability insurance to assure the payment of any judgment obtained in a suit brought to recover damages for death or personal injuries caused by motor vehicle accidents, was enacted in 1925 in Massachusetts but did not become effective until Jan. 1, 1927. While some claim that it is working out satisfactorily, others who have given serious study to the matter are of the general opinion that sufficient time has not elapsed to determine fully whether or not the desired ends have been, or will be, reached through this type of legislation. Thus goes the report, and continues:

"Several other states have enacted modified forms of compulsory liability insurance, namely, Maine, New Hampshire, Vermont, Rhode Island and Connecticut. These forms must not be confused with the Massachusetts plan, since they do not require all owners of motor vehicles to carry insurance. They differ in that no owner is compelled to take out insurance until certain contingencies have arisen. In actual operation, under these modified plans, only a small percentage of all the owners in any of the above states are required to carry insurance. The laws in the first four mentioned states have only been in effect for a few months, so little is known of the success of their operation. While the Connecticut law has been in force since Jan. 1, 1926, there is still considerable doubt as to whether or not it is going to be the solution of this problem."

To those unfamiliar with the insurance plans it must

be pointed out that neither the Massachusetts plan nor any of the modified plans actually guarantees compensation for injuries or death caused by motor vehicle accidents. What they really do is to make certain the collection of a judgment obtained after the successful prosecution of a claim for damages. The injured party must go through all the legal processes of proving his claim and obtaining a judgment before he can derive any benefit from the insurance provided under the plans, unless the claim is settled out of court.

In order to arrive at a sound conclusion as to the wisdom and practicability of compulsory liability insurance legislation, the Motor Vehicle Conference Committee endeavored to obtain reliable and comprehensive statistics showing the amount of uncompensated losses due to injuries to persons or damages to property caused by motor vehicles. The results were entirely unsatisfactory. In truth, it was ascertained that even in those states which have the most rigorous requirements, the accident data are far from complete.

Thus the committee concludes that in the absence of such figures showing the amount of uncompensated losses due to motor vehicle accidents in any one state or in the United States, it would be unfair for the states to impose an extra burden on the motorists in the form of compulsory insurance to cover an amount of uncompensated damages which, when actually ascertained, might be comparatively small. Further, that it is extremely doubtful, in the absence of statistics, if the total amount of uncompensated damages due to motor vehicle accidents would approach anywhere near the \$600,000,000 which, it has been estimated, would be the total annual cost of compulsory insurance to all the motorists in the United States.

Since, in the committee's opinion, there are as yet no facts which indicate that compulsory automobile liability insurance has, or will, reduce the number of accidents, and, since there are no available facts or statistics to show the complete amount of uncompensated losses due to motor vehicle accidents, the Motor Vehicle Conference Committee asserts its opposition "to the enactment of compulsory automobile liability insurance laws until it can be definitely established that such legislation will accomplish the desired results," strongly urging "that other states withhold legislative action on this subject until time and experience have proved the success or failure of the existing plans."

There you have the side of the unconvinced opposition, and even the proponents can scarcely honestly object to the logic of the conclusion. Objections are held, of course, but they are entertained in the absence of statistical proof.

How is the Massachusetts law achieving Aim No. 1? The question is as debatable as that dealing with accident reduction. At any rate there is no doubt that court congestion seriously impairs the value of personal liability insurance, as the victim of an accident—if poor—cannot afford to wait for a decision and may be obliged to accept a nominal settlement from the insurance company. Along this line a veteran Massachusetts automobile man wrote to MOTOR AGE as follows:

"One of the objects of the law was to protect the families of those killed or injured by automobiles. But the motorists would like to have the insurance companies bare their books and show how many settlements they have made, say, of more than \$500 in case the

(Turn to page 42, please)



Pete Kaenan



A MOTOR AGE IMPRESSION—JOHN WARREN WATSON  
President—John Warren Watson Company

# A "District System"

*So Completely Systematized That Results Are as Certain as  
Hot Dogs From a Sausage Grinder*

By Mandus E. Bridston

**I**T is sometimes difficult to determine the "how" and "why" of a successful automobile merchant, or any merchant for that matter. Often there is an intangible something in the man's make-up and personality that gives the only clue to record-smashing sales. Methods may be no different—only the growth and the volume are outstanding achievements.

This is true of the C. H. Wells, Inc., Spokane and Seattle—but still it isn't. There is no doubt but that the driving force, energy and "humanness" of Captain C. H. Wells inspires the kind of employee loyalty that accomplishes big things, but in this instance the personality of leadership is made doubly effective by detailed organization that can't very well help but bring results. Mr. Wells' methods are definite, and hence easily applicable. He knows where he's going and how to get there!

With a 360 per cent increase in volume during the first half of 1927, this Chevrolet organization set the pace for all other Chevrolet dealers in the United States in cities of over 100,000 population. Likewise, this firm is receiving the plaudits of the automobile world for achieving with a new organization the phenomenal total of two and one-half million in retail sales value in the brief initial period of 12 months.

The locale of this achievement is Seattle, whose automobile row welcomed the new Chevrolet dealership about 18 months ago. Since 1922 Mr. Wells had been making Chevrolet history in Spokane, where he still maintains a distributorship for eastern Washington. Prior to that time he had been manager of retail stores of the Chevrolet Motor Co. at Philadelphia. During the year before Mr. Wells entered the Spokane territory, the preceding Chevrolet dealer had sold 364 cars in that region. One year of "Wellsitis" and the sales climbed to 1482, and have been climbing since. This year the Spokane plant sold about 2500 cars, while the Seattle plant approached the 5000 mark.

If we were going to spotlight the focal point in the "how" of this achievement, we would say, "thorough organization" revolving about "district selling." C. H. Wells, Inc., is a selling machine so completely systematized that results are as certain as hot dogs from a sausage grinder.

Mr. Wells' native genius for organization was, perhaps, accentuated by his military training. At any rate this firm is operated with military precision, but flexible enough to be adaptable.

"I'm a great believer in the law of averages," Mr. Wells explained. "I believe that a salesman who interviews 20 people and sells four cars, would sell eight automobiles if he saw 40 people in the same period. This may not be true in every instance, but over a period of time the proposition will hold water, in my

opinion. That's why our watch-word is 'See More People.'

"This fact was forced to my attention several years ago. When I picked up the daily car registration reports and noted the sales in our class, I made it a point to find out if any of our men had interviewed the purchasers. I was surprised how many sales were made by competitors in which our men had not given battle at all. They were mere 'walk-aways' so far as Chevrolet competition was concerned.

"That situation has been the governing influence in our method of sales organization. Our aim is to interview *every* person in our territory, if that were possible. There is always business around the corner, if you can find it. I read an article the other day, whose author predicted the time

*The Spokane home of C. H. Wells, Inc., Chevrolet dealer of Spokane and Seattle*



*Attractive letter-head of the subject of this article*

when the automobile merchant would fire all his salesmen and let the public buy by displaying his wares like the hardware merchant or grocer. When that time comes, I'm going to quit selling automobiles. If we had to wait for business to come to us . . . well, I don't like to contemplate what the results would be.

"Mr. Jones may not like to be bothered by a salesman, but he appreciates the fact that a dealer values his business enough to send out a salesman to talk things over. He may not have a particular preference for a certain make of car, and even though he should, the





# "Selling Machine

I READ an article the other day," said Mr. Wells, "whose author predicted the time when the automobile merchant would fire all his salesmen and let the public buy by displaying his wares like the hardware merchant or grocer. When that time comes, I'm going to quit selling automobiles. If we had to wait for business to come to us . . . well, I don't like to contemplate what the results would be."

C. H. Wells, president of  
C. H. Wells, Inc.



personal interview is of monumental influence in swinging the deal one way or another."

When Mr. Wells expanded his field of operations to include Seattle, the motive in the formation of the new organization was "to see everyone in Seattle." To maintain this intimate contact with prospects, the city was divided into 10 zones as the initial step in establishing an intensive system of "district selling." The boundaries of these zones were determined according to the natural geographic contour of the city and the various trade or shopping centers. Being a city on "seven hills," with two lakes, a canal, one river within its limits, and Elliott Bay almost isolating West Seattle from the parent city, Seattle has numerous such shopping centers that are virtually cities within a city.

C. H. Wells, Inc., has four branch stores in as many zones. (And perhaps at no great distant future each selling zone will have its retail store.) Then each zone is again broken up into districts, with a salesman as-

signed to each district. There are now 70 such districts in the Seattle selling territory.

Mr. Wells' salesmen, instead of treading on one another's toes and burning gas chasing about the entire city looking for business, are allotted a specific territory in which to drum up Chevrolet sales. They become an institution in that district—learn to know the butcher, the baker and candlestick maker instantly—fruitful sources of prospect leads. Chevrolet salesmanship in Seattle almost takes the form of a house-to-house canvass.

If Mr. Smith buys a Ford, an Essex or an Oakland, unbeknownst to a Wells salesman, the salesman in Smith's district is due for a session on the carpet. Each zone is in charge of a sales manager, and if there is a Chevrolet store in that zone, this man is the store manager.

The men in the zone work out of the store, under the direction of the store manager, who maintains





# Breaking Tires in for High Mileage

*Is Just as Important as Breaking in a New Car. An Argument to Help Persuade Customers to Buy Tires in Winter Instead of Waiting for the Hot Weather*

By Harry Flint

Chief Chemist, Gates Rubber Co.



IF any dealer wants a good sound argument to help persuade his customers to buy their tires in winter instead of waiting till the hot weather comes, here is one which is scientific and based on actual tests.

As a matter of fact, the tire purchased in November is likely to outwear the tire just put on in June by many thousands of miles.

The reason is very simple, though it has long been overlooked by most dealers and a vast majority of motorists. It is because a new tire needs breaking in just as truly as a new car needs breaking in; and no tire, any more than a car, should be put under the fullest strain of hard usage until it has been broken in.

A tire as it comes to the user is an article of different parts composed of substances welded together by the process of vulcanization. These various parts have never before known the strain of supporting a car. They have never learned to adapt themselves to each other—they have never done any work.

A new car is composed of many parts, each scientifically made to fit where it belongs and to perform its proper function.

But no wise motorist will start running that car over long distances at fifty miles an hour. No, sir, he'll break it in with all due consideration and care for the first thousand miles, at least.

This process is just as important with a tire, if the owner expects to get full mileage from it.

Thousands of motorists make the mistake of buying new tires and putting them on just before starting on a long journey. This is a mistake. It puts too great a strain on the new carcass before it has adapted itself to the job expected of it. Thousands of miles of extra service are yours if you will break in your tires for a thousand miles or so, before undertaking that long hard trip.

Here is another good tip: never put a brand new tire directly on your spare rim to be carried as a spare. Carry it that way for a few months, and when you put it on the wheel you are quite likely to be disappointed

at the mileage received. The wise procedure is to break in the new tire in service and then place it on the spare rack. That way means thousands of extra miles of service.

Work on the road before it has taken permanent set permits it to conform to inflation pressure without strain.

Harking back to winter time buying and why it is wiser than summer buying, consider that a new tire, adapting itself to a service that is entirely new to it as an individual tire, has to adjust its parts to each other, and the molecules composing each part, to the conditions of service.

The process engenders heat, and in conjunction with the atmospheric heat of fast summer driving, a condition is created which is certainly not conducive to long tire life.

The November tire, the December tire, the January tire, the February tire, the March tire—any one of these has had a chance to be well broken in by the time June rolls around; and the summer sun under the most strenuous driving conditions bothers it not at all.

Any motorists looking back over his past experiences  
(Turn to page 42, please)



Photo by Lee F. Redman

Active in the Tire Simplification and other sessions were these S.A.E. members. Left to right—James E. Hale, manager, development department, Firestone Tire & Rubber Co.; Maurice Olley, chief engineer, chassis division, Rolls-Royce of America, Inc., and Walter R. Griswold, engineer in charge of analysis of design, Packard Motor Car Co. Sitting—Col. William Guy Wall, president S.A.E.

**R**EAL progress toward tire and rim standardization was accomplished at the annual meeting of the Society of Automotive Engineers held in Detroit Jan. 24-27, inclusive. There was also expressed a generally unfavorable attitude by passenger car engineers toward stock-car racing.

The meetings were well attended with approximately 1000 persons registered for the various sessions.

Without doubt the most important session of the entire meeting, from the standpoint of the automotive industry as a whole, was the Tire Simplification Session Wednesday morning. As a result of this meeting it looks as if some progress may actually be made in the matter of simplification of balloon tire sizes. At any rate the session was followed by one of the most important discussions held at any S.A.E. meeting in recent years. A large majority of the quantity passenger car producing companies took part in the discussion as well as engineers representing the tire and rim branches of the industry.

While a majority of those attending the tire and rim session were agreed that something ought to be done in the matter of standardization, there were a number who objected to the suggested standards which were presented. There resulted a hot argument lasting two hours and culminating in the taking of a vote, which while not unanimous, proved that a large majority was in favor of further standardization along the lines suggested.

The matter of tire and rim simplification is one of the outstanding problems of the industry today, especially in view of the growing number of sizes of balloon tires for original equipment. The condition has meant penalization of the dealer because he has been unable to carry complete stocks of tires of all the various sizes making up the standard equipment of automobiles. With these facts in mind it is easy to realize the far-reaching and beneficial effects which may accrue to the industry as a whole as a result of the preliminary steps which have been taken by the S.A.E. At any rate future developments along this line will be highly interesting to watch.

# S. A. E.

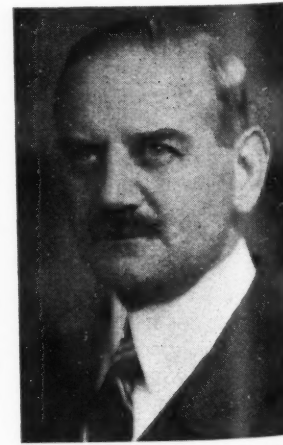
## Society Makes Real Progress in One of Industry's Outstanding Problems. Stock-Car Racing Opposed as Contributing Very Little Technically, and That at a High Cost

As was to be expected, the Stock-Car Contest Session brought out some very interesting arguments and the session developed the fact that stock-car racing is being vigorously questioned by a large number of important passenger car engineers.

The Tire Simplification Session was an outgrowth of a Detroit Section meeting of the S.A.E. which was held on Nov. 21, 1927. At this meeting the various phases of the problem were discussed from the angles of the tire manufacturer, the automotive engineer, the dealer and the Department of Commerce. It then became evident that everyone was agreed that something should be done to eliminate some of the balloon tire sizes and check the addition of still further sizes.

From the angle of the Society of Automotive Engineers, the Tire and Rim Division of the Standards Committee set about to procure some kind of an adjustment and revision of the present S.A.E. balloon tire standards as listed in the handbook, which have become antiquated due to the rapidly changing situation. The Rubber Association of America, Inc., comprising the tire manufacturers, worked simultaneously along similar lines in cooperation with the National Automobile Chamber of Commerce. The reports of these two organizations formed the basis of discussion of the present session.

Each offered a solution to the problem, but with a



Photos by Lee F. Redman

Left—C. B. Whittelsey, chairman of the Tire Simplification Session. Right—Alfred P. Reeves, general manager of the National Automobile Chamber of Commerce, listened attentively to the discussion of tire and rim sizes



# Acts in Tire Simplification



They debated the stock-car racing question. Left to right—F. E. Moskovics, president, Stutz Motor Car Co. of America, Inc.; H. C. Snow, chief engineer, Auburn Automobile Co.; J. M. Crawford, Chevrolet Motor Car Co., and T. J. Little, Jr., chief engineer, Marmon Motor Car Co.

difference, for whereas the Rubber Association's "Proposed Balloon Tire Simplification" chart represented chiefly a reduction in the number of casings at present used, the report of the S.A.E. committee attacked the problem from the rim angle. In the latter case, the committee assumed that a reduction in the number of rim sizes and standardization thereon was of primary importance to the automobile owner for it enabled him to use several different sizes of tires in many cases. The "Provision Revision of Rims for Low-Pressure Tires" offered for consideration for an S.A.E. Recommended Practice, by the Tire and Rim committee, of which H. M. Crane of the General Motors Corp. is chairman, suggested the elimination of all but six rim sizes.

That was where the argument started. Everyone seemed to be agreed that something should be done, but there were plenty who objected to the suggested standards. Naturally any step toward rim or tire simplification had to involve the elimination from the standards of some rims at present used on passenger cars. And while some of the manufacturers expressed their willingness to fall into line and change to different rim sizes, others objected strongly. In fact it was not until a vote was finally taken after more than two hours of heated discussion that it was known whether the attempt to adopt a revised standard would meet with any success. The result of the vote, while certainly not unanimous, proved that a large majority were in favor of recommending it.

This, however, was not yet the end of the battle, for it was still necessary to offer the report to the session of the Standards Committee for adoption. As was to be expected, this session brought about more discussion, with H. M. Crane, chairman of the committee, and W. R. Strickland of Cadillac, leading the opposing forces. Here again, however, the proponents of simplification won the battle and the Standards Committee as a whole adopted the proposed revision with but a single dissenting vote.

As proposed by the Tire and Rim Committee and

adopted by the S.A.E. the report calls for the standardization of the following rim sizes:

Nominal R.m Diameter (in.) (Tire-Seat Diameter)	Nominal Rim width (in.)	Width between flanges (in.)	Nominal tire sizes used (1)
21		2.75 Drop center or flat base	30x4.50
18	4	2.68	28x5.25, 30x6.00
19	4	2.68	29x5.00, 29x5.50, 31x6.00*
19	4½	3.125	31x6.00*
20	4½	3.125	32x6.00*
20	5	3.75	32x6.00*, 32x6.75

(1) Tire sizes are not part of this specification, but are given to show the nominal tire sizes used at present on each rim.

\* Note duplication.

In comparing this standard with the proposed reduction in the number of balloon casing recommended by the Rubber Association, it was noted that every tire size listed, except the 32 by 6.75 and 28 by 5.25 was included in the Rubber Association recommendations. The latter, however, includes several more sizes, due chiefly to the retention of 4.75 in. and 6.50 in. tire cross-sections.

Acceptance of the report of the Tire and Rim Committee of the S.A.E. was in no small measure due to the able handling of the session by C. B. Whittelsey, chairman of the session. In opening the session, Mr. Whittelsey called attention to the fact that for original equipment, out of a total of 34 different sizes, 77.4 per cent of the casings sold were in six sizes only during the year ended Oct. 1, 1927. During 1928 there is already a slightly better picture with tire sizes reduced to 24 varieties although the replacement picture is still worse. Replacement sales for the year ended Sept. 30, 1927, were found to furnish a figure of 77.7 per cent of sales in 10 sizes only, covering both balloons and high pressure, there being four of the latter type included. Elimination of the high pressure casings still shows that six sizes provided about 77 per cent of the total balloon tire replacement business.

In commenting on the committee report, Mr. Whittelsey called attention to the fact that the 21 by 2.75 in. rim, carrying the 30 by 4.50 balloon tire size, was retained, although it might be considered outside a

## S. A. E. ACTS IN TIRE SIMPLIFICATION

specification of this type. He stated that the committee thought it advisable to retain this size for some time due to the fact that it was in use by both Chevrolet and Ford, therefore representing about half the total car production, and could thus not be neglected. Its use, he believed, reflected a large use of low-priced cars in country districts where large road clearances and larger corresponding wheel diameters were still required.

One of the most important points of the recommendations of the committee is in the elimination of the 20 by 4 in. rim. Mr. Crane, in offering the report, stated that a survey indicated that this rim size would probably become obsolete during 1928.

The proposed simplification of tire sizes as worked out by the Rubber Association of America was then presented to the meeting by B. J. Lemon of the U. S. Rubber Co. As this chart was to be the subject of a conference between tire and automobile manufacturers in Chicago, it was desired to obtain an opinion from the S.A.E. meeting as representing the engineering end of the automobile industry regarding the proposed elimination of various sizes.

The chart briefly called for simplification to be taken in two steps. The first would call for the elimination of all 21-in. rim tires except the 30 by 4.50 Ford and Chevrolet size, elimination of all 5.25 cross-section sizes, as well as the 6.75 cross-sections, leaving a total of 16 sizes as against 24 used at present. The final step would involve standardization on one wheel size, the 20-in. type, carrying seven cross-sections with varying rim widths. It was also recommended that rim widths between flanges be changed to 0.50-in. steps, involving an increase in width of the 4-in. rim from 2.68 to 2.75 in., and the 4½-in. rim from 3.125 to 3.25 in.

Both charts were then offered for discussion. Comments were obtained from a large number of the automobile companies.

At this point of the discussion the rim standardization program of the committee was put to a vote with the already mentioned result of the adoption of the report for reference to the Standards Committee, leading to its final adoption. The discussion then continued regarding the proposed Rubber Association program.

A motion was then made by President Col. W. G. Wall of the Society that the Rubber Association proposal be referred to a special committee of the Society for further consideration, in view of the opinions brought out, to enable any desirable additions or possible deletions to be made. The motion was passed unanimously and Chairman Whittelsey appointed a committee composed of men having varying opinions.

The fundamental value of stock-car racing was vigorously questioned by a large number of important passenger car company engineers at the Stock-Car Session which nearly 300 members attended. While the value of certain technical data gathered as a result of competitive racing was admitted by most of the engineers, the consensus at the meeting was that the same information could be and was in many cases being procured at considerably less cost in other ways.

If such races are to be held, such important engineers as T. J. Litle, Jr., H. C. Snow and James Crawford believe the cars should be bought at random from dealers' floors and placed under the supervision

of the A.A.A. until the race actually takes place, few, if any, modifications or adjustments being permitted meantime and then only under strict supervision.

Private certified A.A.A. tests seem to be looked upon with slightly greater favor by a majority of the engineers, but several prominent technical men branded even this form of speed trial as an expensive method of developing technical data about the cars.

F. E. Moskovics, president, Stutz Motor Car Co. of America, on the other hand, put in a vigorous defense of stock-car racing as a means of getting information about weak spots in design and cited numerous instances from the successful year of stock-car racing which his own company has just been through to prove his contention that competitive racing has an engineering value that cannot be obtained from private certified tests or from private runs and experiments of other kinds.

"While we have learned a great deal from racing," Mr. Moskovics said, "I think we have entered our last stock-car race in the United States, at least for some time, although we will keep the commitments we have made. Our reason is that the A.A.A. will not recognize the difference between a competitive contest and a record trial; they place the same value on both. As long as they do we are going to take the one where the least chances are involved. We are going to continue in record trials."

Paul Dumas, technical editor, *Automobile Trade Journal*, who has had an important part in supervising many stock-car contests as an A.A.A. official, laid the basis for much of the discussion in the paper which he had prepared and which was read by Lewis Dibble at the opening of the session. "No one," Mr. Dumas stated, "who has had a really close, yet disinterested, affiliation with recent stock-car racing can wholeheartedly condemn or conscientiously praise it as an institution."

Unusual interest attached to the discussion by James Crawford, formerly chief engineer of Auburn Automobile Co., and now on the engineering staff of the Chevrolet Motor Car Co. Mr. Crawford very frankly voiced the belief that racing is the most expensive rather than the cheapest way of determining engineering characteristics of a car; that racing takes away the attention of the chief engineer from things he ought to be doing back at the factory; that it encourages the incorporation in stock models of features which are of little, if any, value to the public; that the advertising value is relatively small and chiefly local in character; that the manufacturers have no reason to pay the salaries of race promoters and the overhead of tracks; and that "We in the industry are so close to this matter of stock-car racing that our ideas as to its value are warped."

J. T. Litle, Jr., chief engineer, Marmon Motor Car Co., was of the opinion that, while racing probably was an important publicity agent in the early days of the industry, "today it would not seem that we actually needed this type of publicity, although it has been very successfully used by some."

David Beecroft, vice-president, Chilton Class Journal Co., who is a member of the A.A.A. contest board, urged that all tests or races be conducted only with cars carrying fenders, windshield and full equipment or that such tests be discontinued altogether.



# Electrical System Details of the Model A Ford

By C. Edward Packer

THE Ford electrical system utilizes conventional single wiring. All wiring is of ample size, and flexible and solid metal conduit and loom is used to guard against shorts or grounds. The battery, which is carried in the frame immediately in front of the driver's seat and on the left side of the car, has its positive terminal grounded. It will be recalled that in the Model T system the negative terminal was grounded. In the Model A the negative terminal of the battery is connected directly to the starting switch, which is mounted on the top of the starting motor.

The starting motor is a four-pole, four-brush machine with the field divided. The current flows to the starter by way of the ground brushes, through the armature to the field brushes, and divides, and flows out through the starter switch by way of the field windings, returning to the battery by way of the heavy cable. The starting motor

should run freely and at high speed when being tested without load and should draw between 60 and 70 amp. at 5 volts. Engagement between the starting motor and the engine is by means of a special starter drive operating on the inertia principle.

The generator is mounted at the front, left side of the engine and is driven by a V-belt from the crankshaft of the car at approximately one and one-half times engine speed. The entire generator differs radically from conventional construction. Six pole pieces are used, these being wound with field coils having 104 turns of No. 19 single cotton enamel insulated wire. One end of the field winding is grounded while the other end is brought up to the third brush. The positive brushes, which are immediately above and below the

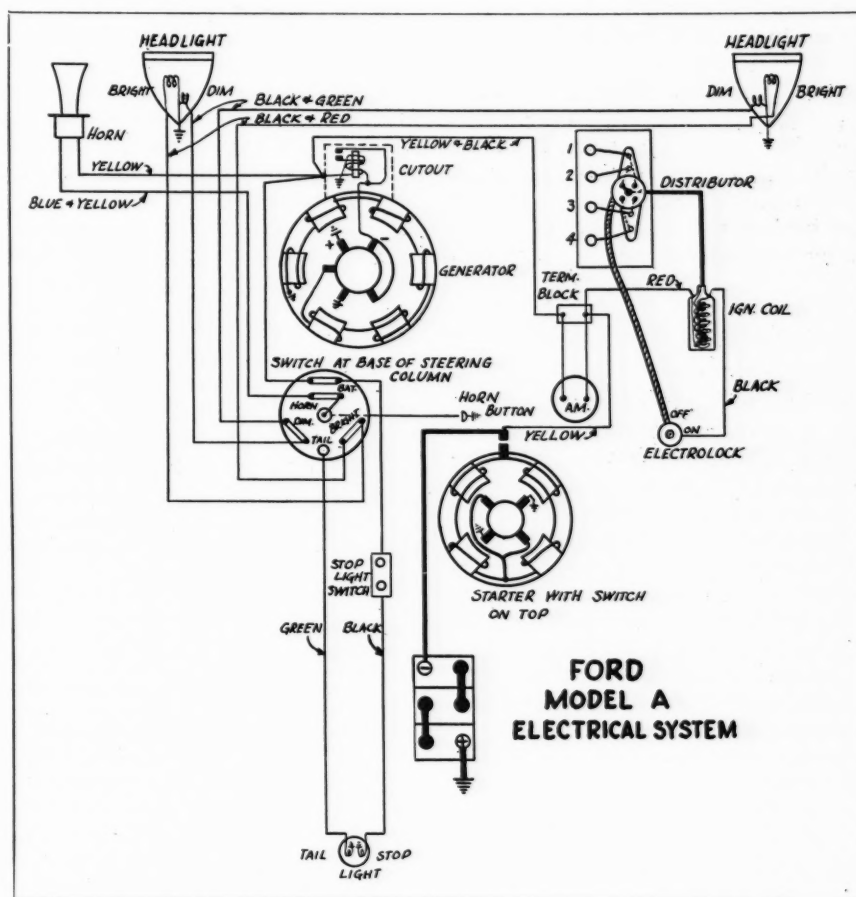
third brush, are grounded. The negative brushes, as shown in the diagram herewith, are connected together by a jumper and a lead connects them to the generator terminal.

The large armature is interesting. There are 40 segments to the commutator. The 40 coils of the armature each have but six turns of No. 17 single cotton enamel insulated wire. The armature is carried on ball bearings both of which are forward of the commutator.

The output of the generator is readily adjustable. To change the charging rate, remove the commutator cover at the back of the generator by sliding out the clips and tapping the cover off. Loosen the screw that clamps the third brush and move the brush slowly in the direction of rotation until the desired charging rate is reached. To reduce the charging rate, the brush is moved against the direction of rotation.

One should be careful to be sure that the brush is securely locked in place after the desired adjustment is made. It is recommended that the generator never be set to exceed 12 amp., as doing so is likely to result in serious overheating of the unit on long trips. This rate, however, can be considerably exceeded if the car is to be used only on short runs, particularly in cold weather.

The cut-out is mounted directly on, and grounded to, the generator. Connection to the battery is made by way of a yellow wire with a black tracer which leads from the cut-out in the generator up to the left terminal of the terminal block on the front of the dash. From here the wire leads up to the ammeter and down again from the ammeter to the right terminal of the terminal



## ELECTRICAL SYSTEM OF MODEL A FORD

block, and from there down to the top of the starting motor, connecting with the cable leading to battery.

The lighting switch is located at the base of the steering column and has terminals of unique design, the wires being held in place by means of spring clips. A cover incloses and protects the wires and connections. The headlights use bulbs with two filaments—the bright one being of 21 cp. and the dim one of 2 cp. The lights are grounded, two wires leading to each light, one for bright and the other for dim. Stop and tail lights are in one unit, the black wire leading to the tail light and the green wire to the stop light.

Ignition is manually controlled and has 38 deg. of advance as measured on the flywheel. The ignition points should be set to open .018 to .022 in. To time the ignition, remove the little plug on the right-hand side of the large camshaft gear cover. Turning the engine slowly by hand, a position will be found where the rounded end of this plug will fit into a depression in the composition cam gear. At this position No. 1 piston is exactly on top dead center. Timing is accomplished by moving an adjustable cam in the ignition unit. To move the cam loosen the large screw at the top of distributor shaft. The cam should be turned counter-clockwise until the ignition points are just ready to break, but have not broken when the engine is set as described. In making this adjustment, the ignition

unit should be in the fully retarded position. After setting the ignition cam it would be well to check the points again to be sure that they are not open, as this would give a little too much advance and might result in damage to the starter when cranking the engine.

As will be seen in the diagram, the ignition coil is connected to the battery at all times. The circuit is completed through the Electrolock. The wire from the Electrolock to the ignition unit is heavily armored. When the ignition is locked, the primary circuit is not only open but the breaker is grounded so that it is impossible to take a lead directly to the breaker. It is also impossible to remove this heavily armored wire without taking the ignition unit out of the car, and even then no terminal is exposed by means of which the circuit could be completed readily through the ignition unit. The ignition unit can be removed and replaced on the engine by loosening a set screw on the side of the block, but can only go on in one position as the driving slot is off-set.

The horn is mounted on the outside of the hood and is of typical motor-driven construction. The circuits of the horn lead from the battery connection on the generator cut-out up to the horn, and from the horn back to the switch at the base of the steering column. From the terminal on the switch a wire leads up the steering column and is grounded at the horn button.

### What Slice Compulsory Insurance?

*(Continued from page 32)*

father or son or other bread-winner of a family has been taken away. At a recent gathering in Boston complaints were received of persons having been injured and being offered as little as \$10 by insurance companies; others received a few hundreds.

"Many in Massachusetts, after reading the eulogies that accompanied the introduction of the legislation, believed that in the event of accident or death all they had to do was go to the State House and collect up to \$5,000. When they found that they had to make their settlement with the insurance companies as in the past, they were not pleased. When these cases multiply, and the long-drawn court cases fail to produce satisfactory results, there will be widespread dissatisfaction."

It is apparent that Massachusetts' experience has failed to satisfactorily fortify the position of either of the belligerents, but information wafted beyond the boundaries of the state leads one to believe that the experience to date has inspired the automobile retail trade with a grave concern for the future of the low-priced used-car market. And the reason might have been anticipated. It boils down to the fact that a used car which required an outlay of \$100 in pre-compulsory days, now compels the prospect to expend \$150 to \$175. The insurance item, it is obvious, becomes a sales obstacle, and the used-car problem of Massachusetts car dealers takes on an even more intricate complexity. With fewer cars on the roads it requires no exertion of the imagination to perceive the ramified effect likely to be sustained by service shops, garages, and by the replacement parts, accessories and supplies trade.

The failure of Massachusetts to register its normal increase of 50,000 car registrations in 1927 reflects the probable effect the law is having upon the automotive trade. In this regard one state official voiced an opinion

that perhaps is echoed by all proponents when he said that he was satisfied to defend the soundness of a principle which "drives the unfit car as well as the unfit motorist off the highway."

The question is of more than local importance—a fact that is as prominent as a carbuncle on a lantern jaw. And in 1928 and years to follow quite a number of state legislatures will turn loose an army of brains on the subject of compulsory automobile liability insurance and—take it or leave it.

### Breaking Tires in for Long Mileage

*(Continued from page 37)*

with tires will recognize the truth in these observations, though he may never have understood the why of it.

One of the men who systematically tests Gates tires under conditions of load service operates a stage line in New Mexico. Five tires put into service in November gave on the average over 28,000 miles each tire.

Five exactly similar tires, compounded by the same formula and manufactured under exactly the same control and used under exactly similar conditions, but first put on in June instead of November, averaged just a little better than 12,000 miles each tire.

Any dealer of observant habits will tell you that the tire that gives no trouble in the first 500 miles is quite likely, if it is a good tire, to run up a merry mileage of 20,000 miles or more.

This same dealer has often wondered why it was that tires of the very best makes often do develop trouble in the first 500 miles.

Well, now he has the answer which applies in the vast majority of cases where there has been no actual defect in material or workmanship. The owners of these tires never gave them a chance. They didn't think to break them in, as they would break in a new car.



# READERS' CLEARING HOUSE

Questions Answered By C. Edward Packer

## Clogged Oil Line Causes Trouble

I know of a Studebaker 1925 Special Six that you cannot keep the bearings from burning out in, if the car is driven over 40 miles an hour. Under 40 miles an hour everything is O. K. The bearings will burn out as soon as it is driven over 40 miles an hour. The car seems to be in perfect working order otherwise. We have tried all different kinds of oil but this makes no difference. The owner of this car will bring it to my shop for repairs if I tell him that I can cure this trouble, but I want your advice first. What do you suppose can be causing this trouble and what can we do to remedy this.—Iowa Subscriber.

THE subject of bearing burning out on this particular car was checked up here and we find that the trouble must be due to an obstruction in the oil passages. You will appreciate that the leakage and spray from the main bearings would be able to lubricate the rods on light duty. However, when running at 40 miles an hour or more, the oil, leaking and spraying from the main bearings would not be sufficient to keep the rods properly lubricated. We would suggest that you check up the oil passages in the crankshaft of this car very carefully to be sure that they are open. If an inferior oil has been used in this car, or if the oil has been used too long before changing, it is entirely possible that sludging has taken place with the result that the passages have become obstructed. You may be sure that the bearings, if properly fitted and lubricated, will remain in place at speeds well over 40 miles an hour.

## Essex Six Service Problems

I wish to overhaul an Essex 1926 coach and want a few suggestions. First, let me know if it is necessary to take the wrist pin out in order to get the piston out of the car to install new rings. Please give me the valve timing of this car, and also let me know if the rear end can be adjusted without removing from the car.—Riley C. Bates, 515 Fifth Street, Eau Claire, Wis.

IT is not necessary to take the wrist pins out in order to remove the piston and rod assemblies from the car. Consequently, you will not have to take the wrist pin out when you install the new rings. The rod and piston assemblies can be removed through the bottom of the engine by carefully turning the crankshaft by hand to get the counterbalances out of the way when the piston is brought down. The rear axle is conventional and can be adjusted without being removed from the car. In

timing the valves the inlet should open 7 deg. after top dead center and the exhaust should close 8 deg. after top dead center. In checking up on this the valves should be so adjusted that the inlet has a clearance of .004 in. and the exhaust a clearance of .006 in., when the engine is thoroughly hot.

## Mr. Wayne Thanks MOTOR AGE Readers

Since the publishing of my inquiry and your answer about the Dodge that gave me trouble, I have received so many letters from MOTOR AGE readers offering suggestions that I am unable to answer them all personally. Consequently, I wish that you could thank them all for me through the columns of the Clearing House.

All of the suggestions received were mighty fine. The entire trouble was due to a restriction in the flow of gasoline through a special filter that I was using. The car is working splendidly now and I certainly am thankful to MOTOR AGE and all of its readers for the help that they have given me.—H. A. Wayne, 7600 Carnegie Ave., Cleveland, Ohio.

And we wish to thank you also, Mr. Wayne. It is a great pleasure to work with readers who let us know of benefits received. These cases very frequently come to our attention and we are always glad to be of service. This matter of long distance trouble shooting by mail is not the easiest thing in the world and, consequently, we always appreciate the cooperation of readers who frequently make such helpful suggestions. MOTOR AGE joins Mr. Wayne in thanking all Clearing House Readers for their cooperation in solving unusual problems.

## How to Tin Aluminum Alloy Rods

We are writing to see if you can furnish us a formula for tinning Lynite or alloy connecting rods before rebabbitting them.—T. H. Orr, Orr's Machine Shop, Sixth and Alabama, Okmulgee, Okla.

THE following information on the subject has been supplied through the kindness of the Baush Machine Tool Co., manufacturer of duraluminum:

The babbitting of duraluminum connecting rods is identical with babbitting directly into steel rods; the difference in the procedure being entirely in the preparation of the rod before babbitting. The rod must be tinned before babbitting as in the case of steel rods but the method of tinning is different as no flux is used and care must be taken that the temper is not drawn from the heat-treated duraluminum rod by getting them too hot. The following equipment and procedure will be found satisfactory:

1. The tin pot should be so equipped that the temperature of the molten tin is known and can be regulated.
2. A stiff wire brush of the type known as a flue brush should be mounted over the tin pot and mechanically rotated. A convenient method is to mount it like a sensitive drill so that the brush can be lowered into the tin bath. The procedure is to warm the large end of the connecting rod in the tin bath and clean it by means of the rotating brush. The rod or the brush, or both together, should then be dipped into the tin and the adhering tin be thoroughly brushed in. Then dip the rod, shake off the surplus tin and then immediately babbitt, as in the case of the steel rod, by any of the well-known methods, such as centrifugal, die-cast or with hand-pouring fixtures. Any of the standard babbitts may be used and the temperature of the babbitt should be the same as with steel.

To avoid unduly drawing the temper from the big end of the connecting rod, tin bath should be kept either between 500 and 550 deg. Fahr., or the rod should be warmed only to the point where the tin will not freeze on the rod and readily amalgamate with the duraluminum when brushed. If the job has been well done, the tin will show a mirror-like surface after being dipped and shaken with no bear spots. The bond between the tin and the duraluminum rod will be superior to the bond between the tin and a steel rod. The bond between the babbitt and the tin will be dependent on the prompt

## [ READERS' CLEARING HOUSE ]

babbitting of the rod before the tin has oxidized and on the proper temperature of the babbitting fixtures and the babbitt, this being a matter of some experimentation, the same as in babbitting steel rods.

When rebabbitting an old connecting rod care must be taken not to draw the temper of the rod in melting out the old babbitt. There is danger of this when dipping the rod in the babbitt pot where the babbitt is 850 to 900 deg. F. The babbitt can best be melted out by dipping in a pot when the molten babbitt is not above 550 deg.

### Is 25 hp. Always 25 hp.?

Which is the more powerful, a 25 hp. gasoline engine or a 25 hp. steam engine?—Joe Butterfield, Knight's Auto Repair & Battery Co., Braman, Okla.

AS you say in the question, both have 25 hp. Now horsepower is a combination of force times distance. One horsepower equals 33,000 foot pounds per minute. In other words, 1 hp. is capable of lifting one pound 33,000 ft. in one minute, or 33,000 pounds one foot in one minute. That is the true measure of horsepower.

We believe that what you have in mind, however, is what would happen if a 25 hp. gasoline engine and a 25 hp. steam engine were coupled together and arranged to run in opposite directions. The power of the gasoline engine is dependent upon the speed of the engine, whereas with the steam engine this is not so much the case. Consequently, when the clutch connecting these two engines is thrown in, the power of the gasoline engine will rapidly drop off as a result of the slowing down and therefore, the steam engine will be able to stop and back up the gasoline engine.

### It's Better to Buy New Plates

Here is something I would like to know about the four-cylinder Essex clutch. I put new corks in one last week and have taken it out four times since then and it still drags until it is almost impossible to get the gears engaged when the car is standing still with the engine running. I put three Ford thrust washers back of the throw-out bearing to see if that would help any. I ground out the notches which were worn in the four U-shaped grooves which takes the thrust from the driven disks. This clutch releases fine out of the car but when installed it will not work right. The driven disks are worn rough as the owner drove it with the corks burned out due to the lack of oil in the clutch. I have found that a Hudson-Essex garage buys the disks with the corks inserted, directly from the factory. It may be that it takes some special knowledge or equipment to put these corks in and trim them off properly. I first boiled them in water to make them soft and then pushed them in and cut off, leaving approximately 1/16 in. on each side. Then I rubbed them on sandpaper until smooth and put the plates back in. Anything you know of to make this work properly will surely be appreciated.—J. E. Medill, Jaroso, Colo.

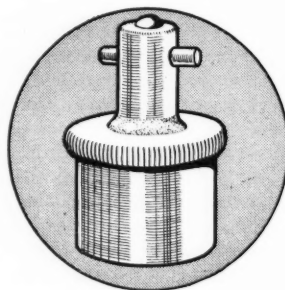
YOUR problem is evidently caused by uneven trimming of the corks. It is practically impossible for one to

## SHOP KINKS

*Ideas that have proved useful*

WHEN greasing old cars that are equipped with grease cups I find that it is a good plan to have a couple of different sized grease cup screw covers with high pressure grease fitting soldered to them. Then I can just put on the cover and run the cup full of grease and put the old cover back in place.

—Edwin Ulrich, Jones College Store, Wayne, Neb.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

insert these corks and trim them off without using elaborate equipment for the job. You will be time and money ahead by installing new plates which may be obtained from any Hudson-Essex agency, as these plates have their corks inserted by machinery and trimmed in the same way for absolute uniformity. In the event that the steel plates against which the cork plates run are scored or rough at all, they should also be replaced or they will tear up the new corks.

### Studebaker EM Timing

Please send me instructions for timing a Model EM Studebaker of 1923. The chain jumped, and although I timed the ignition with the piston it does not seem to have the speed and it heats up when driven around 50 miles an hour. It has plenty of power on a hard pull and does not overheat at moderate speed.

—D. W. Parsell, Parsell's Garage, Hamilton, Ind.

THE flywheel on this car is marked and the valves should be set according to the markings. This would be with the inlet opening at 7½ deg. after top dead center and the exhaust closing at 11 deg. after top dead center. Before checking the valves, however, you should see that the tappet clearance on both intake and exhaust valves is .005 in. when the engine is

thoroughly hot. We would also suggest that you try advancing your spark a little more and continue to advance it until the engine pings or knocks when the throttle is suddenly opened with the car in high gear and going about 10 miles an hour. Then carry your spark just slightly retarded from that position.

### Uses 9 Qt. Oil in 40 Miles

We have a 1924 Maxwell which uses entirely too much oil.

We put in new pistons, new rings and tightened up all the bearings and still have not overcome the difficulty. This car uses about 9 qt. of oil to run 40 miles. Any information you can give me will be greatly appreciated.—John W. Peters, Lanark, Ill.

FROM the work that you have done, we conclude that the oil is not working into the combustion chamber. If you will look at the rear main bearing you will find that it has an oil drain hole approximately ¼ in. in diameter. Connecting a copper tube to this in such a way that the tube outlet is below the level of the oil in the crankcase will prevent crankcase pressure from blowing oil out through your rear main bearing. We would also suggest that you check to see that your breather is not clogged.

### Chain, Oiling Questions

On the 1927 Essex, how many teeth are there in the timing chain between the punch marks on the sprocket?—Warren Motor Sales Co., 125 Warren St., Glens Falls, N. Y.

THE sprockets have two punch marks and counting from the tooth located between these two punch marks on each one there is a total of 21 teeth.

The top speed of this car is 50 miles an hour and changes in ignition timing make no difference. The engine is slightly rough at about 45 miles an hour, but pulling a hill does not make her ping. Would we speed up the car and increase its pep if we took 1/16 to 1/8 in. from the cylinder head?

You probably could improve performance by increasing the compression as suggested, but you would have to use special non-detonating fuels in order to keep it from pinging. Possibly a valve grinding job and the refitting of rings would also help this car.

This car has been driven about 4000 miles since the bearings were taken up. The speed is ordinarily around 35 miles an hour, but at times 45 miles an hour is maintained for as much as 100 miles. The oil pressure during this time drops to as low as 1 lb. Do you think this pressure shows enough oil circulation to take care of these speeds?

Any oil pressure at all on your gage is sufficient. This gage merely indicates that the oil is flowing and a higher reading would not mean that more oil was getting to the bearings. The gage reading can be raised by slightly stretching the spring at the top of the oil pump, but we would not recommend this as it does not increase the amount of oil being delivered, as the stroke of the pump is fixed. If you have kept good oil in this engine, we doubt greatly if your oil passages are clogged.



# Legal Queries on Automotive Topics

Answers by Wellington Gustin

## Priority in the Matter of Repair Liens

1. I wish to have all the possible information on lien law in Illinois. Can I hold a car for repairs that has a chattel mortgage against it? Say some finance company has a chattel mortgage on a car and owner drives it in, orders repairs on it, then leaves it; can finance company take car without paying bill?

2. A man brings in car for repairs but trades car to a dealer. Said dealer comes for car. Does he have to pay bill before he can seize car?

3. Can I seize a car for repairs that has a mortgage against it? I have a bill against a car. Owner does not deny bill but just will not pay. This car has a mortgage against it. Please advise me by mail.—Fred Croft, Pontiac, Ill.

THE Illinois statute gives the repairman a lien but same is given no preference over prior liens. But wherever the mortgage or other prior lien requires the mortgagor to keep the car in repair, the courts have held that such direction makes the mortgagor the agent of the mortgage holder to have repairs made and have the repair lien superior to his own lien.

Without knowledge of what is in the mortgage in question, it is pretty safe to assume the mortgagee did not constitute the mortgagor, his agent, to make any liens superior to his own. However, this is only a guess. But a prior chattle mortgage is superior to a repair lien in Illinois.

You have the right to hold any repaired car until your lien is paid or until taken out of your possession through a court order served by the proper officer.

If you are willing to concede that a finance company or other lien claimant has a superior lien and the car is not worth the lien, then you may safely surrender the car. But it is the court's duty to pass upon the liens. Again, if you hold the car and force the lien holder to foreclose his lien, then on sale you may intervene and apply the remainder of proceeds of sale on your own claim.

Note that the mortgage holder has only a right in the proceeds of the sale of the car, and not to the car itself. The repairman also has a right in the car, a right to the proceeds after the prior claimant is satisfied.

2. The repairman's lien attaches from the moment he begins the work of repairs. If sale of car is made subsequently, the dealer's lien for repairs and storage is superior to the rights of the subsequent purchaser, and the repairman can withhold the car until payment is made. And the fact that bill of sale is dated prior to repairs is not conclusive. There may be a trick or fraud in that. The fact that

the seller ordered the repairs is evidence that he still held title in the car.

3. The repairman's lien is not valid unless he has within 60 days from delivery of the repaired car to the owner or agent filed his lien notice with the recorder of deeds as required by Section 41, Chapter 82, of the Illinois Statutes.

If the time has not expired you may seize the car repaired in the manner set out in Section 45, Chapter 82, Illinois Statutes, regardless of the mortgage against it. The question is one of expediency. If the mortgage is prior to your lien, the mortgage would have to be paid first. But any remainder would go to payment of your own claim.

If you have no priority here you may take judgment and levy on the car and anything else belonging to debtor which is not exempt.

## Free Delivery Service Liability

At times customers request us to deliver and, in some instances, call for and deliver their cars.

We avoid as much as possible extending this service on account of the possibility of accidents or damage that may occur.

As we make no service charge for calling for or delivering a car, we are just wondering if we stand liable for any damage done to owner's car.—Quick Service Auto Laundry, Clarksburg, W. Va.

YOUR question of liability in case of accidents when your own employees call for and deliver cars at points named by your customers depends on facts which I shall set out so that you may know how to protect yourself.

First, you are liable in any event if you send out to secure or deliver a car a driver who is known to be careless and incompetent, and an accident results from such carelessness, negligence and incompetence.

Where you are not chargeable with negligence in sending an incompetent driver, your liability will depend on whether the facts show the driver to be the agent and servant of the customer or of yourself, the laundry.

If you make no charge for the service and tell the customer that the driver you send for or with a car is acting for the customer under his directions, you would relieve yourself of any liability in case of negligence of the driver in calling for a car or making delivery thereof.

Generally, where one makes no charge for the service you mention, the courts will construe the employee to be under the direction of the customer, and thus his servant for the particular

errand, especially where the service is not the usual work of the laundry or garage owner. But one may find difficulty in showing that the service is free, and a court will usually be inclined to find that the service comes within the general charge of the laundry or garage owner, as part of the service offered the customer for pay, while the bill of charges may not set out a particular charge for this service.

While you say you make no charge for this service, the safe way is to do those things that insure your being not liable. If you tell the customer that you will put a competent driver at his disposal, service free, and that such driver must be regarded as his own servant, you will have relieved yourself of the liability in the matters of which you write. But there is yet a possible loophole for the customer in case of accident whereby he might be able to hold you responsible for the driver's negligent acts.

This loophole is the matter of evidence. The customer may come into court and deny the statements you make about this understanding or agreement as to the driver becoming the servant of the customer for the purpose of making delivery or calling for car. So if you had a written memorandum of such fact to give the customer, preserving a copy, you would have evidence to support your case. Such a statement could be included in your order blanks. Some firms have such disclaimers of liability on the backs of their order blanks. Where so placed it should be brought to the attention of the customer at the time.

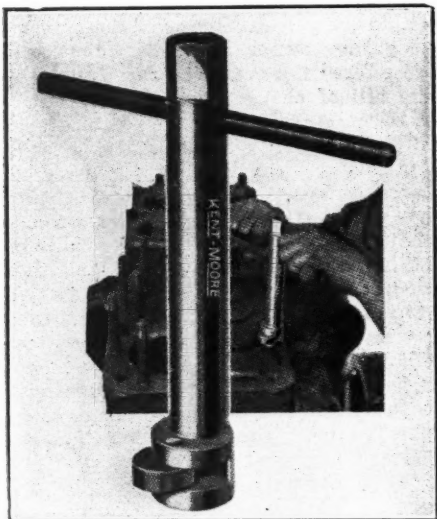
Where you must rely upon an oral statement to a customer you should have a witness to prove your claim. If it be a telephone conversation, the witness should know the name of the party to whom you are talking. Your repeating the name in conversation so that the witness and party can understand should be sufficient to establish that the witness know to whom you were talking. These are little matters of evidence, but necessary to establish or defend in an action, and are quite as important as the basic law itself.

Finally, it may be said, that to divest yourself of the liability for damages resulting from sending one of your own employees to fetch or deliver a car on which you expect to do work or store for pay, you must make your own employee temporarily the agent and servant of the customer in doing this particular work. Otherwise, although you might not be liable in testing out the case, by following the rule given you will insure yourself against any judgment for damages. Litigation whether you win or lose is costly to both parties.

# The Latest in Equipment for

## Universal Stud Wrench

**T**HIS stud driver will quickly remove and reinstall all studs from 5/16 to 3/4 in. diameter. Weight is one pound. The driver or wrench,



due to the knurled eccentric collar, will do its work without marring the stud. Known as the model U-9 and made by the Kent-Moore Organization of Detroit, Mich.

## Valve Seat Inserting Tool

**F**OR the purpose of saving money for the car owner and making money for the shop, the Stewart Devices Corp., 209 Marquette Bldg., Detroit, Mich., has brought out a valve seat renewing tool. This quickly and accurately counter-bores the cylinder block and makes possible the insertion of the new valve seat. These valve seats are so accurately made that they are a drive fit in the block. The equipment is made in various sizes to handle practically any make of engine. The price varies from \$20.50 to \$26.50, depending on size, while the rings for inserting in the block vary in price from 15 to 20 cents.

## Improved Automobile Heater Tubing

**T**HE Chicago Tubing & Braiding Co., of 216-224 N. Clinton St., Chicago, Ill., announce that they have

improved the construction of their tubing in such a way as to give an increased inside diameter without increasing the outside diameter. This is said to be done without sacrificing any weight or strength. As many of their customers require the old inside diameter, together with the old outside diameter, the Chicago Tubing & Braiding Co. continues to manufacture both styles.

## Electric Wrench

**S**PEEDY assembling and disassembling is the outstanding feature of the new electric ratchet wrench developed and sold by the United States Electrical Tool Co. of Cincinnati. With this equipment it is possible for a mechanic to remove or set up tight



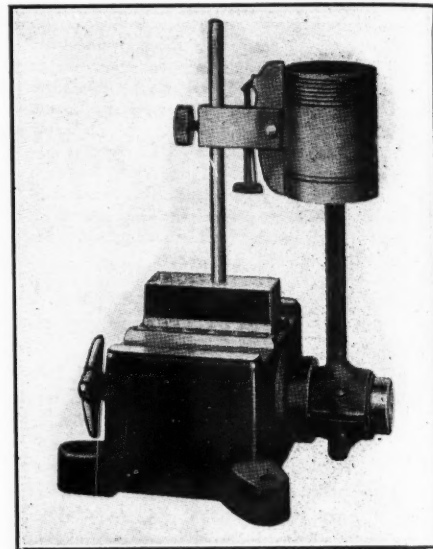
the 15 bolts on the Model T cylinder head in less than one minute. Hand leverage is used for loosening or drawing the bolt tight while the electric motor spins the bolt or nut on or off. This wrench is equipped with a universal motor and is available for current of 110 or 220 volts. The weight is only 8 lb.

## Electric Tire Spreader

**A**N electric tire spreader is a new piece of equipment offered by the Kehawke Mfg. Co., 825 Western Ave., Minneapolis, Minn. This machine will spread any casing of 3 in. to 9 in. width. An electric motor provides the power for spreading the casing while the casing is brought to a working level hydraulically. An interesting feature is the electric light which is mounted in such a position that the inside of the casing is illuminated.

## Rod and Piston Aligner

**V**ARIATIONS in alignment of either rod or piston are registered on this machine by a micrometer indicating gage reading in one thousandths of an inch. The tool is universal and



readings for both rod and pistons are made without removing the assembly from its testing arbor. Made by the Simplicity Mfg. Co., Port Washington, Wis.

## Scranton Battery Tester

**T**HE Kant Stick, Scranton and Marvel battery testers have the newly patented square float, a unique idea perfected and brought out by this organization. The square float acts the same as a prong float in the prevention of sticking, but eliminates the hazard of protruding prongs of glass which are subject to easy breakage. The Scranton



ton battery tester has an octagonal-shape bulb. The Kant Stick tester also has the octagonal bulb and square float and in addition a new type of nozzle arrangement which combines the advantage of the rigidity of the hard rubber tip, with the flexibility of a soft rubber tip. The price is: Marvel Battery Tester, 50 cents; Scranton Battery Tester, 75 cents. The Scranton Glass Instrument Co., Inc., Scranton, Pa., makes these items.



# the Automotive Service Shop

## Front Axle Aligner

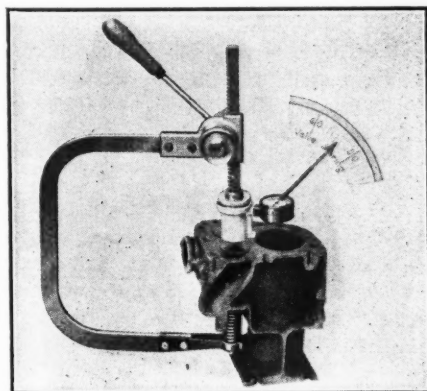
**T**HIS tool makes use of cones which are adjustable on the upright rods. The cones are placed in the axle beam as shown then by sighting endwise it can be determined at once if axle is twisted. By laying the straight edge across the axle saddles, and setting



protractor to proper pitch for axle being tested it can be quickly seen if king pin holes are parallel. This is known as the Model No. U-97 and is made by the Kent-Moore Organization of Detroit, Mich.

## Valve Spring Tester

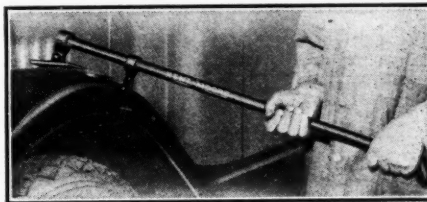
**T**HIS is a direct reading pressure gage to be used in conjunction with any model of the Stevens valve lifter. It shows at a glance exactly



how many pounds each valve spring is exerting and this is done without removing the spring from the engine. The model No. is T-380 and price is \$10. It is manufactured by the Stevens Walden - Worcester, Inc., Worcester, Mass.

## Fender Straightener

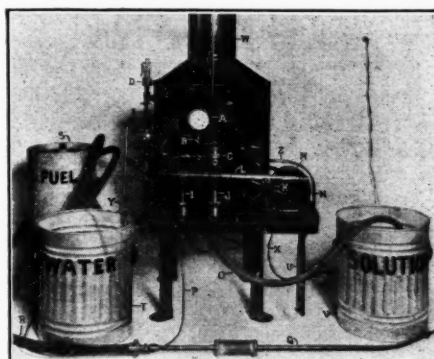
**T**HIS tool makes possible the repairing of all kinds of fenders in a fraction of the time usually required. The tool consists of a long heavy forged bar (38½ in. long) with a close bent



hook at one end for straightening the fender flange and a self-leveling leather covered pad and hook at the other end. The weight is 10 lb. Model No. U-67. This fender straightener is made by the Kent-Moore organization, Detroit, Mich.

## Hypressure Jenny

**F**OR cleaning engines and parts to be repainted, for car washing and for the removing of paint from automobiles Hypressure Jenny has been developed by the Homestead Valve Mfg. Co., of Homestead, Pa. Briefly this equipment consists of a boiler and



necessary accessories, fuel, water and solution containers, together with hose and nozzle for applying the cleaning fluid. An electric motor is a part of the equipment and by means of this the cleaning or paint stripping solution can be applied under a pressure as high as 150 lb. if desired.

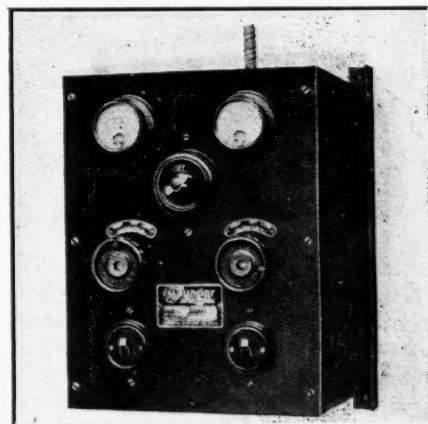
## Valve Seat Renewing Tool

**T**HIS valve seat renewing tool has a double bearing on the anchor which holds it firmly in place on the block and causes the cutters to cut the valve seat port accurately. The self-regulating adjustment on the heat allows the operator to regulate the cut of the tool to suit his requirements. The ball bearing contained in the head makes this the most easily operated and fastest cutting tool on the market.

Cutter and pilots are interchangeable for different sizes. Machines vary in price from \$17.75 to \$19.50, depending on the size and type. Made by Hinckley-Myers Co., Jackson, Mich.

## GE Battery Chargers

**T**HE General Electric Co. is now offering Tungal battery chargers capable of charging 30 batteries. The price on this charger varies from \$180 to \$200, depending on the voltage and



frequency of the current source. The thirty-battery Tungal is practically two fifteen-battery Tungs combined, having two charging circuits. It is easily installed and operated. A dial switch regulates the charging current and an ammeter shows the amount. Price of renewal bulb is \$8.

## U. S. Valve Refacer

**T**HE grinder shaft on the Model V-R valve refacer manufactured by the United States Electrical Tool Co., Sixth St. and Mt. Hope Rd., Cincinnati, Ohio, is now being fitted with five bearings instead of three. The motor has been increased in power to .55 h.p. and the handle on the cross feed which was formerly 3 in. in diameter is now 5 in.

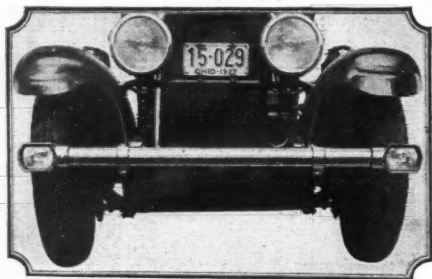
## Simplicity Valve Refacer

**A** COMBINATION machine, which has a valve refacer, carbon cleaning brush, reamer drive, valve reseater cutter, commutator attachment and wheel dressing attachment has just been placed on the market by the Simplicity Mfg. Co., Port Washington, Wis. This machine has a three-ball type chuck which will take reamers up to 5/8-in. diameter. Price \$275.

## Accessories and Equipment

### Bright Bumper

**T**HE main feature of this bumper, otherwise conventional in design, is that it has driving lights in either end. The manufacturer states that the National Board of Underwriters has tested this bumper and approved it and that a saving of 12½ per cent on collision insurance is allowed on all cars on which it is used. This item



is known as the "Bright" bumper. The manufacturer offers to make replacements without charge if for any cause either lenses or reflectors are broken. Seamless cold drawn steel tubing is used for the cross member and the spring is oil-tempered spring steel. Ends which house the driving lights are of malleable iron finished in black, nickel or duco to match any car color. "Bright" bumper is manufactured by Warren Tool & Forge Co., Warren, Ohio.

### Esta Safety Tire Gauge

**A** NEW device recently presented is the Esta Safety Tire Gauge for measuring air pressure as it goes into the tire, warning the user with a loud whistle when the desired pressure is reached, and then automatically preventing any additional air from entering.



Aside from its safety feature, the principal advantages are that it needs to be used but once on each tire, and even pressure is assured to all tires.

It is manufactured in only one model but serves either balloon or high pres-

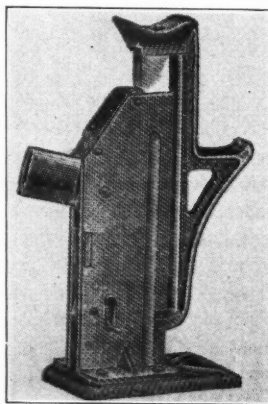
sure tires on all types of wheels. It is small enough to be conveniently carried in the pocket and is guaranteed for both accuracy and wear. Desired pressure is set by the operator by turning the handle to the figure designating the pressure needed. This is manufactured by Esta Gauge Company, 2129 S. Michigan Ave., Chicago. List price is \$1.50.

### Improved Mason Tires

**A** FLAT tread that increases mileage and prevents irregular wear, together with side wall strips supporting and strengthening the tire where the strain is greatest, are among the features which are said to make the Hylastic cord 20 per cent stronger than ever before. The Imperial Mason cord is also said to have 20 per cent greater strength than previous types. The M-Tread cord is a lower-price, but high-grade cord tire, made by the Mason Tire & Rubber Co., Kent, Ohio.

### Pratt Jack

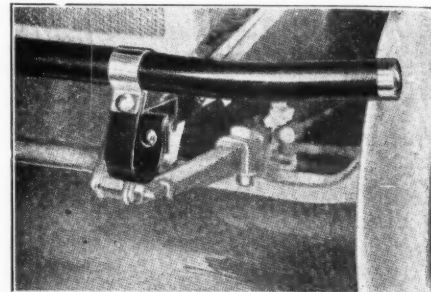
**T**HE Pratt Jack for balloon tires is made of heavy gage steel, pressed to shape, and has a rack bar of cold rolled steel with milled teeth. Size of rack bar 1 in. by ¾ in. The jack is enclosed on top, side and bottom



to exclude mud, has an extra heavy and large base. Long folding handle has a device for reversing this jack to raise or lower while in position under the car. Heavy side step provides initial height of 6 in. with 6 in. raise on step; 10 in. height and 6 in. raise on main standard. The No. 46 provides a jack of low cost and great durability for all cars weighing up to 3000 lb. Finished in black enamel. This jack is manufactured by William E. Pratt Mfg. Co., Chicago, Ill.

### McKay Round Bumper

**U**NITED STATES CHAIN & FORGING CO., Pittsburgh, Pa., announce a new line of Round Bumpers and Fender Guards, no special fittings being required to attach them to the car. The bars are made of cold drawn, heavy steel tubing, specially finished for enameling. End caps are likewise made of cold drawn steel, heavily



nickel-plated. Riser springs are made of specially tempered high carbon steel of extreme resiliency, and present an unusually wide faced bumping area. Bars are available in two finishes, black satin enamel or priming coat ready for color. Trimmings are heavily plated with brilliant nickel. The ends of the round bars are gracefully curved to harmonize with car design. List prices range from \$35 to \$42.50 per set, special fittings costing \$5 extra. Round fender guards for Chevrolet, Star, Essex, Pontiac, Whippet and Chrysler 52 are \$30 per set.

### Bear Manual

**P**ROBLEMS of front-wheel alignment and adjustment are dealt with in a comprehensive and clear way in the Bear Manual of wheel and axle alignment which has just been brought out by the Bear Mfg. Co., 2030 Fifth Ave., Rock Island, Ill. Treating, as it does, the conditions which cause shimmy, tramp, or wheel wobble, this booklet should prove valuable to all service men. This may be had without charge by merely writing to the Bear Mfg. Co. It will be recalled that among the Bear products are wheel and axle aligning gages, axle caster shims, snubbers and a special plier wrench.

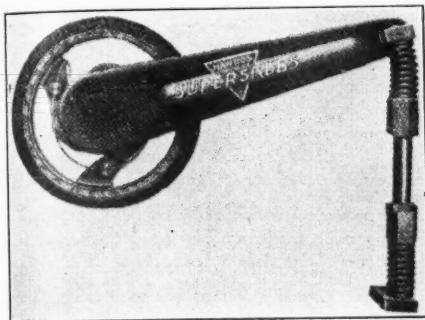




# Offered the Automotive Trade

## Shock Absorber

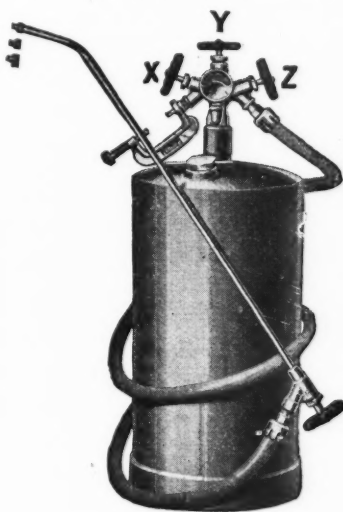
**T**HIS item is known as the super-snub and is manufactured by the Hawdos Corporation, Corning, N. Y. This device uses the internal expand-



ing brake principle which operates automatically and imparts the required amount of braking action on the rebound. It is not necessary to lubricate this shock absorber.

## Romort Engine Cleaner

**A** COMBINATION of engine cleaner and spring oiler known as the Romort, Style SO, is now being marketed by the Zinke Co., 1323 Michigan Blvd., Chicago, Ill. This engine cleaner and spring oiler is a portable tank which carries the lubricant or cleaning fluid, depending on the kind of work one wishes to do with it. This tank is put under air pressure from any con-



venient air compressor. A pressure gage and control valve are a part of the equipment. By means of a tube and controllable nozzle the cleaning fluid can be applied with considerable force to the engine or any other parts which one may wish to clean. When

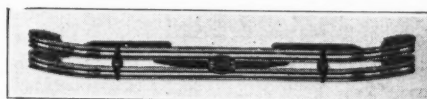
using this equipment for spring oiling, the hose and long nozzle are a great help in reaching all parts of the spring. The price of the equipment varies according to the style of tank, and ranges from \$28 to \$35.

## Milburn Engine Cleaner

**T**HIS engine cleaner designed to clean engines with kerosene and compressed air, is of unusually heavy design and is adjustable to throw a fine mist or heavy, strong spray, in order to moisten and drive off all dirt and grime from engines and other automobile parts. The natural pistol grip affords a convenient means of operation. This spray gun is furnished with 6 ft. of metal tubing and is connected directly to the air line. It is made by the Alexander Milburn Co., 1416-1428 W. Baltimore St., Baltimore, Md.

## Weed Bumpers

**A** NEW line of bumpers and fender guards is announced by American Chain Co., Bridgeport, Conn. Designed in a black grooved stripe, both bumpers and fender guards are made in two-bar and three-bar styles and in suitable



sizes for light, medium and heavy cars. List prices range from \$13 to \$19 on the bumpers, without attachments, and \$9 to \$15.50 on the fender guards, without attachments.

## Smith Welding Equipment

**N**EWEST in the developments of the Smith Welding Equipment Corporation of Minneapolis, Minn., is the insulated tip for their welding torches. As the heat of a neutral flame is approximately 6300 deg. F., the heat naturally is reflected by the metal and in turn the tip becomes very hot. Ordinarily this would result in backfiring and unsatisfactory welding. The insulated tip on Smith equipment now eliminates this. These tips sell at \$7.50 in sizes 65 to 68 and \$8.50 in sizes 69 to 612.

The complete line of Smith Welding Equipment includes torches, hose, regulators, brazing and welding rods, flux and in fact everything required by the welder.

## Frost Shield

**F**ROST shields prevent the frosting of the inside of the windshield and in conjunction with the windshield wiper insure clear vision for the operator of the vehicle. The principle of the inside frost shield is the same as the storm window or double glass. The dead air space between the two pieces of glass creates an equalizing air temperature which prevents frosting from moisture or low temperature. Frost shields can be installed on any car, truck or taxicab where there are two spaces on the top of the windshield 1½ in. wide for the retaining clamps. Made by Morse Manufacturing Co., 510 S. Clinton St., Syracuse, N. Y.

## Model A-3 Ajax Growler

**T**HE A-3 growler is designed and offered to the garage trade that only has occasion to test a few armatures a week. It is a low-priced supplement to the complete Ajax line of growlers. It has a surprising amount of strength and will efficiently test all small armatures under 3 in. diameter. This growler complete with terminals sells for \$4.75, and is made by the Ajax Electric Co., Kalamazoo, Mich.

## Valve Reseating Sets

**K**EYSTONE valve reseating set No. 1200 covers all passenger cars and trucks and trucks having detachable head motors with 45 deg. valves and many with closed head motors with 45



deg. valves. It contains the following: 3-45 deg. cutters, 7 pilots, 1 regular and 1 long shank complete. The sets are packed in hard wood cases. List price \$20.

Made by Keystone Reamer & Tool Co., Millersburg, Pa.

# PURRS AND PINGS



## "An Authority!" Says a Man of Authority

REDLANDS, CALIF.—I have been on a six months' tour of the States and my subscription has expired. I desire to keep posted on the automobile industry through the agency of a good periodical. I consider MOTOR AGE a good authority on this point. Realizing there may be important data and information in the back numbers I have missed, would appreciate information how to secure these.—E. G. Schutt.

## We're Not Merely Good, But Too Good

ALLSTON, PA.—I cannot afford to miss a copy of MOTOR AGE; they are all too good. I am expressly interested in the Clearing House Department; some facts there have helped me immensely.—Sid Gage.

## A Harmonious Gobble From Turkey River

TURKEY RIVER, IOWA—I sure like MOTOR AGE.—Matt J. Adams.

## The Third Partner

VALLEY FALLS, KAN.—We have been subscribers to MOTOR AGE ever since we have been in business and we find it ever helpful.—Murray-Heer Motor Co.

## An Epicure's Delight

RAY, KAN.—I would just as soon miss a meal as MOTOR AGE.—Phil Fertig.

## Sellman's Sold on Us

MABEL, MINN.—I am a reader of MOTOR AGE and like it very much.—Chas. F. Sellman.

## Gets a Kick Out of the Kinks

RUTLEDGE, MO.—We like MOTOR AGE from front to back and sure like the Shop Kinks.—J. P. See.

LETTERS to the editor from those whose "attention has been called"; from those who point with pride and those who view with alarm, from those who are easy to please and those who are hard to please; from those who are happy when they find a good thing and those who are happier when they find something they consider not so good; from those who boost and those who knock; from those who see the doughnut and those who see the hole; in other words, Dear Subscriber, from you and you and you—as well as from the man who borrows your copy of MOTOR AGE or reads it over your shoulder.

## Thank You! for the News and the Compliment

LOS ANGELES, CALIF.—Thought you might want to know that Harlan Fengler has leased the Ascot track and is putting on one meet each month under A.A.A. sanction. Being a race fan I feel that Harlan and the drivers deserve mention in your wonderful magazine.—C. H. Humphreys.

## With Emphasis on the Best

MCKINNEY, TEX.—MOTOR AGE is the best automotive magazine published.—C. C. Ballard.

## Hurrah! Hurrah!

HEREFORD, TEX.—MOTOR AGE coming in fine. Please play Dixie.—H. L. Rice.

## The "Head Man" in This Show

SAN SIMON, ARIZ.—I have derived much information and genuine pleasure in reading MOTOR AGE's pages.



Among the various publications of its kind, it easily heads the list.—A. W. Siek.

## The Bells of St. Marys Ring Out With a Purrr

ST. MARYS, PA.—I am a contented reader of your MOTOR AGE. I find it a very valuable and interesting magazine. What I like to read most is the Readers' Clearing House, it being the first department I read. I follow that subject day after day.—E. J. L.

## Our Field Men Will Be Pleased to Hear This

EXCELSIOR, MINN.—I have been a subscriber to a monthly automotive magazine for the past year but am switching to your magazine for the reason that statistics are more accurate; you have earlier news and more about new cars and their mechanical details.—Lee J. Clark.

## Have They Shipped Any?

DENVER, COLO.—Don't they ever ship any new cars into that little town so you could get the shipping weights of them to fill out the weight column for the new Ford?—G. N. Gromer.

## If It Isn't We Want to Be Told

CAMBRIDGE, MASS.—I have been a subscriber to your magazine for only two weeks and if the next 50 issues are as good as these two I will be more than pleased.—J. W. Harris.

## New Car Info fo' Him

SEATTLE, WASH.—The information on new cars is MOTOR AGE's most interesting feature to me.—R. M. Smith.

## Our Aim Exactly

EPHRAIM, UTAH—MOTOR AGE is sure a helper to any man's business.—Emry Olsen.

## Another R. C. H. Booster

POMONA, CAL.—The Readers' Clearing House feature of MOTOR AGE interests me most.—F. A. Sylva.



# Prices, Weights and Equipment of Current Passenger Car Models

Important Changes  
in Specifications and  
Price Tables since  
last issue:

CHANDLER "BIG 6"  
Price Changes

NASH  
Price Reductions

PEERLESS "6-91"  
New 7p. Sedan

Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment
<b>CADILLAC "341"</b>				
"Fisher"				
2-4p. Roadster....	\$3350	2	4590	aeghlmprx
5p. Phaeton.....	3450	4	4640	aeghlmprx
5p. Sp. Phaeton...	3950	4	5125	Beghiklmnp
7p. Touring.....	3450	4	4630	aeghlmprx
2-4p. Coupe.....	3295	2	4820	aeghlmprx
2-4p. Conv. Coupe	3495	2	4665	aeghlmprx
5p. Coupe.....	3495	2	4760	aeghlmprx
5p. Sedan.....	3595	4	4880	aeghlmprx
5p. Town Sedan...	3395	4	4875	aeghlmprx
7p. Sedan.....	3695	4	4965	aeghlmprx
5p. Imp. Sedan...	3745	4	4925	aeghlmprx
7p. Imp. Sedan...	3895	4	4965	aeghlmprx
5p. Imperial Cab.	3745	4	4925	aeghlmprx
7p. Imperial Cab.	3895	4	5025	aeghlmprx
<b>"Fleetwood"</b>				
5p. Sedan.....	4095	4	4995	aeghlmprx
5p. Sedan Cab....	4095	4	4995	aeghlmprx
7p. Sedan.....	4195	4	5080	aeghlmprx
7p. Sedan Cab....	4195	4	5080	aeghlmprx
5p. Imperial.....	4245	4	5035	aeghlmprx
5p. Imperial Cab.	4245	4	5035	aeghlmprx
7p. Imperial.....	4445	4	5135	aeghlmprx
7p. Imperial Cab.	4445	4	5135	aeghlmprx
...Town Cab Con	5000	4	5135	aeghlmprx
...LimBro'm Con	5500	4	5135	aeghlmprx
<b>CHANDLER</b>				
<b>"Big Six"</b>				
7p. Touring.....	\$1725	4	4390	ahmnrw
5p. Met. Sedan...	1525	4	4370	ahmnrw
4p. Coupe.....	1725	2	3435	ahmnrw
3p. Ctry. Club...	1725	2	3435	ahmnrw
7p. Sedan Del...	1925	4	4375	ahmnrw
5p. Royal Sed...	1725	4	4345	ahmnrw
...Cabriolet.....				
<b>"Spec. Six"</b>				
5p. Touring.....	995	4	2475	ah
5p. Sportster....	1165	4	2650	ahw
5p. Sedan.....	995	4	2685	ah
3p. Coupe.....	1055	2	2620	ah
5-p. Invn. Sed...	1085			
2-4p. Coupe.....	1155	2	2650	ah
...Cabriolet.....	1215			
<b>"Roy. St. 8"</b>				
7p. Touring.....	1935	4	3645	ahjmnprw
4p. Coupe.....	1935	2	3610	ahmnoptx
4p. Ctry. Club...	1935	2	3610	ahmnoptx
5p. Sedan.....	1995	4	3760	ahmnoptx
7p. Sedan.....	2195	4	3870	ahmnoptx
3-5p. Cabriolet...				
<b>CHEVROLET</b>				
2p. Roadster....	495	2		dr
5p. Touring.....	495	4		dr
5p. Coach.....	585	2		dhr
2p. Coupe.....	595		2235	
5p. Sedan.....	677	4		dhr
2-4p. Cabriolet...	667	2		dhr
5p. Imp. Land...	715	4		dhr
<b>CHRYSLER "52"</b>				
5p. Touring.....	\$ 695	4	2130	ahr
2-4p. Roadster...	670	2	2075	ahr
2p. Club Coupe...	670	2	2205	ahr
5p. Sedan.....	670	2	2300	ahr
5p. Sedan.....	720	4	3375	ahr
2-4p. DeL. Coupe	720	2	2320	ahr
5p. De L. Sedan...	790	4	3375	ahr
<b>"62"</b>				
5p. Touring.....	1095	4	740	aghr
2-4p. Roadster...	1075	2	2705	aghrw
2p. Bus Coupe...	1065	2	2780	aghr
5p. Sedan.....	1095	2	2855	aghr
5p. Sedan.....	1175	4	2905	aghr
2-4p. Coupe...	1145	2	2855	aghr
5p. Land. Sedan...	1235	4	2940	aghr
<b>"72"</b>				
2-4 Sp. Roadster...	1595	2	3005	aeghlmprx
4p. Coupe.....	1595	2	3160	aeghlmprx
2-4p. Coupe.....	1545	2	3130	aeghlmprx
5p. Roy. Sedan...	1595	4	3225	aeghlmprx
5p. Town Sedan...	1695	4	3270	aeghlmprx
2-4p. Con't Coupe	1745	2	3100	aeghlmprx
5p. Crown Sedan...	1795	4	3235	aeghlmprx
...Town Cab....	3595			
<b>Imp. "80"</b>				
2-4p. Roadster...	2795	3		aeghlmprx
5p. Sedan.....	2945	4	4185	aeghlmprx
7p. Sedan.....	3075	4		aeghlmprx
5p. Town Sedan...	2995	4	4140	aeghlmprx
7p. Sedan Lim...	3495	4	4285	aeghlmprx
<b>CUNNINGHAM</b>				
<b>"V-7"</b>				
7p. Touring.....	\$6650	4	4600	Ceghiklmnp
4p. Sp. Touring...	6150	4	4500	Ceghiklmnp
4p. Coupe.....	7600	2	4700	Ceghiklmnp
6p. Limousine...	8100	4	5000	Ceghiklmnp
<b>DAVIS "99"</b>				
4p. Polo Rdster...	\$1885	2	3095	aeghlmpr
5p. Touring.....	1885	4	3125	aeghlmpr
4p. Coupe.....	1885	2	3145	aeghlmpr
5p. Emp. Sedan...	1885	4	3275	aeghlmpr
<b>DIANA "St. 8"</b>				
5p. Phaeton.....	\$1695	4	3100	agmn
5p. Roy. Roadster	1795	2	2995	agmnw
5p. P.B. Rdstr...	1805	2	2995	agmnw
5p. Cab. Rdstr...	1905	2	3180	aghma
5p. Collap. Rdstr.	2135	2	3180	aghma
5p. 4d. Sedan...	2035	4	3275	aghmnot
5p. 2d. Sedan...	1795	2	3170	aghmno
<b>DODGE BROS.</b>				
<b>"124"</b>				
5p. Touring.....	\$795	4	2581	Ar
2p. Roadster....	795	2	2454	Ar
2p. Sp. Roadster	845	2	2530	Der
5p. Sp. Touring...	845	4	2679	Der
...Sp. Touring...	880			
...Sp. Roadster...	945			
<b>"128"</b>				
5p. Sedan.....	875	4	2600	Aehr
5p. DeL. Sedan...	950	4	2609	Aehrt
2p. Coupe.....	855	2	2428	Aehrt
4p. Cab. Rdstr...	955	2	2463	Behr
<b>"Victory 6"</b>				
2-p Coupe.....	1045	2		aghr
2-4p. Coupe.....	1095	2		aghr
5-p Sedan.....	1095	4		aghr
4-p Brougham...	1095	2		Bghjnr
4-p DeL Bro'm...	1170	2		Bghjnr
5-p DeL Sedan...	1170	4		Bghjnr
<b>"Senior"</b>				
4p. Cab. Rdstr...	1595	2	3353	aeghmprx
5p. Sedan.....	1495			ehr
5p. Sedan.....	1595	4	3412	aeghmprx
4p. Coupe.....	1570	2	3315	aeghmprx
<b>du PONT "E"</b>				
4p. Roadster....	\$2800		3700	afghikmnp
5p. Touring.....	2800	4	3850	afghikmnp
4p. Coupe.....	3200		3850	afghikmnp
5p. Sedan.....	3400		4100	afghikmnp
5p. Con. Sedan...	3750	4	4100	Bghikmnp
<b>"F"</b>				
Phaeton.....	\$3950			
Sp. Phaeton....	4500			
Sedan.....	4050			
5-p Limousine...	4265			
7-p Sedan.....	4265			
7-p Limousine...	4475			
...Conv't Sed...	4775			
<b>DURANT</b>				
<b>"55"</b>				
...Coupe.....	\$ 795			a
5-p. Sedan.....	795	2		a
5-p. Sedan.....	895	4		a
<b>"65"</b>				
5-p. Touring.....	795	4		aghma
2-4p. Sp. Rdster...	1025	2		Beghikma
2-4p. Coupe.....	975	2		aghma
5-p. Sedan.....	975	2		aghma
2-4p. Collap. Cab.	1045	2		aghma
5-p. Sedan.....	1075	4		aghma
5-p. Town Sedan...	1175	4		Beghikma
<b>"75"</b>				
5-p. Sedan.....	1385	4		aghma
5-p. Town Sedan...	1550	4		Beghikma
<b>ELCAR</b>				
<b>"6-70"</b>				
4p. Roadster....	\$1295	2	2580	ahnr
5-7p. Touring...	1295			ahnr
4p. Brougham...	1295	2	2670	ahnr
5p. Sedan.....	1295	4	2750	ahnr
<b>"8-78" Std.</b>				
2-4p. Roadster...	1395	2		ahnr
5p. Touring.....	1395			ahnr
2-4p. Coupe.....	1395	2		ahnr
5p. Sedan.....	1395	4		ahnr
<b>"8-78 Royal"</b>				
4p. Roadster....	1495			aeghmpr
5p. Touring.....	1495			aeghmpr
4p. Coupe.....	1495			aeghmpr
5p. Sedan.....	1495			aeghmpr
<b>"8-82"</b>				
5-7p. Touring...	1695			aeghmpr
2-4p. Roadster...	1695	2		aeghmpr
4p. Coupe.....	1695	2		aeghmpr
5p. Prin. Sedan...	1895	4		aeghmpr
<b>"8-91"</b>				
2-4p. Roadster...	1995			aeghmpr
4p. Coupe.....	2295			aeghmpr
5p. Prin. Bro'm...	2295	4		aeghmpr
5p. Prin. Sedan...	2295	4		aeghmpr
<b>"120"</b>				
5-7p. Touring...	2465	4		aeghmpr
5p. Std. Sedan...	2465	4		aeghmpr
7p. Std. Sedan...	2565	4		aeghmpr
<b>ERSKINE "6"</b>				
5p. Tourer.....	\$835	4	2300	aeghr
4p. Spt. Rdster...	965		2305	Beghnrw
5p. Club Sedan...	795		2470	aghr
2p. Bus Coupe...	895		2265	aeghr
4p. Spt. Coupe...	965		2230	aeghr
5p. Sedan, 4d....	965	4	2425	aeghr
<b>ESSEX</b>				
<b>"Super Six"</b>				
2-4p. Roadster...				ahmr
5-p. Spt. Touring.				ahmr
2-4p. Coupe.....	775			ahmr
5-p. Coach.....	735	2		ahmr
5-p. Sedan.....	795	4		ahmr
<b>FALCON-KNIGHT</b>				
<b>"12"</b>				
4p. Roadster....			2450	ghr
...Touring.....				
4p. G.G. Rdster...			2500	Beghkmprw
2-4 Coupe.....	1145		2565	ghr
5p. Brougham...	1095	2	2665	ghr
5p. Sedan.....	1195	4	2700	ghr
5p. Landau.....			2735	ghrtu

## KEY TO SYMBOLS:

A—Wood wheels with spare.  
a—Wood wheels.  
B—Wire wheels with spare  
b—Wire wheels.  
C—Optional wheels with spare.  
c—Type of wheels optional.

D—Disk wheels with spare.  
d—Disk wheels.  
e—Front and rear bumpers  
f—Front bumper.  
g—Shock absorbers or snubbers  
h—Automatic windshield wiper.

i—Trunk and trunk rack.  
j—Trunk rack, no trunk.  
k—Spare tire.  
l—Spare tire lock.  
m—Engine heat indicator.  
n—Dash gasoline gauge.

o—Car heater.  
p—Cigar lighter.  
r—Rear traffic signal.  
s—Spotlight.  
t—Vanity and smoking set.  
u—Smoking set.

v—Vanity set.  
w—Windshield wings.  
x—Clock.  
y—Overall length.  
z—Prices on application.

## Prices, Weights and Equipment of Current Passenger Car Models

Passenger and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment
<b>FORD "A"</b>				
2-4p. Roadster.....	\$ 385	2	.....	Beghnmr
5p. Phaeton.....	395	4	.....	Beghnr
2p. Coupe.....	495	2	.....	Beghnr
2-4p. Spt. Coupe.....	550	2	.....	Beghnr
5p. Tudor Sedan.....	495	2	.....	Beghnr
5p. Fordor Sedan.....	570	4	.....	Beghnr
<b>FRANKLIN</b> "Series 12" 119" W.B.				
2p. Coupe.....	\$2490	3400	an	
4p. Victoria.....	2740	3440	an	
5p. Sedan.....	2790	3500	an	
5p. O. Sedan.....	2815	3500	an	
5p. Spt. Sedan.....	2910	3550	an	
3-5p. Con vt Cpe.....	2925	3450	an	
<b>128" W.B.</b>				
2-4p. Sp. Runab't.....	2975	3390	an	
5p. Sp. Touring.....	2975	3390	an	
7p. Touring.....	3060	3540	an	
7p. Sedan.....	2980	3780	an	
7p. O. Sedan.....	3015	3780	an	
7p. Limousine.....	3080	3780	an	
<b>GARDNER</b> "75 Std."				
4-p. Roadster.....	\$1195	2	2995	ahmnr
5-p. Sp. Coupe.....	1295	2	3290	ahjmnr
4-p. Vic. Coupe.....	1295	2	3290	ahjmnr
5-p. Club Sedan.....	1395	4	3265	ahmnr
5-p. Std. Sedan.....	1495	4	.....	ahmnr
<b>"75 Del"</b>				
4-p. Roadster.....	1295	2	2995	aeghmnr
5-p. Sp. Coupe.....	1395	2	3290	aeghjmnr
5-p. Vic. Coupe.....	1395	2	3290	aeghjmnr
5-p. Club Sedan.....	1495	4	3265	aeghmnr
5-p. Del. Sedan.....	1595	4	.....	aeghmnr
<b>"85"</b>				
4-p. Roadster.....	1695	2	3040	Aeghmnr
5-p. Brougham.....	1875	4	3360	Aeghmnr
5-p. Sedan.....	1895	4	3380	Aeghmnr
.....Cus. Coupe.....	2095	.....	.....	.....
<b>"95"</b>				
2-4p. Roadster.....	2095	.....	.....	.....
2-4p. Collap. Cpe.....	2495	.....	.....	.....
5-p. Brougham.....	2275	.....	.....	.....
5-p. Sedan.....	2295	4	.....	.....
<b>GRAHAM-PAIGE</b> "610"				
2p. Coupe.....	\$860	.....	.....	.....
5p. Sedan.....	875	.....	.....	.....
<b>"619"</b>				
4p. Coupe.....	1575	.....	.....	.....
5p. Sedan.....	1595	.....	.....	.....
<b>"629"</b>				
5p. Sedan.....	1985	.....	.....	.....
5p. Town Sedan.....	2085	.....	.....	.....
7p. Sedan.....	2110	.....	.....	.....
<b>HUDSON</b> "S"				
2-p. Roadster.....	.....	.....	.....	ahmnr
.....Coupe.....	\$1265	2	.....	ahmnr
5-p. Coach.....	1250	2	.....	ahmnr
5-p. Sedan.....	1325	4	.....	ahmnr
<b>"O"</b>				
7-p. Phaeton.....	.....	.....	.....	ahmnr
.....Landau Sed.....	1650	.....	.....	ahmnr
5-p. Sedan.....	1450	.....	.....	ahmnr
.....Victoria.....	1650	.....	.....	ahmnr
7-p. Sedan.....	1950	.....	.....	ahmnr
<b>HUPMOBILE</b> "A"				
4p. Roadster.....	\$1335	2	.....	aghr
7p. Phaeton.....	1395	4	.....	aghr
5p. Sedan 2d.....	1345	2	.....	aghr
4p. Coupe.....	1385	2	.....	aghr
5p. Sedan.....	1395	4	.....	aghr
<b>"C-4"</b>				
5p. Touring.....	1795	4	3300	aghr
7p. Touring.....	1895	4	3360	aghrvrx
2-4p. Roadster.....	1895	2	3355	aghrvrx
5p. Brougham.....	2095	2	3515	j
2-4p. Coupe.....	2195	2	3465	dghrx
5p. Sedan.....	2195	4	3545	aghr
5p. Victoria.....	2195	2	3525	aghrvrx
7p. Sedan.....	2345	4	3360	ehr
7p. Sedan Lim.....	2520	4	3360	sehrvrx
<b>"M-8"</b>				
5-p Phaeton.....	1905	.....	.....	.....
.....Roadster.....	1915	.....	.....	.....
7-p Phaeton.....	1935	.....	.....	.....
5-p Sedan.....	1825	.....	.....	.....
4p. Coupe.....	1865	.....	.....	.....
4-p Sedan.....	1875	.....	.....	.....
2-4p Cabriolet.....	1955	.....	.....	.....
<b>JORDAN</b> "R"				
4p. Blue Boy.....	\$1495	4	2800	Beghkmnr
4p. Spt. Salon.....	1295	2	2775	aghmnr
2-4p. Tomboy.....	1395	2	2650	aghmnr
5p. Sedan.....	1395	4	2775	aghmnr
<b>"J-1"</b>				
4p. Playboy.....	1545	2	2915	aghmnr
2-4p. Sp. Coupe.....	1695	2	3070	aghmnr
5p. Cus. Sedan.....	1695	4	3200	aghmnr
4p. Cus. Vict.....	1695	2	3200	aghmnr
<b>"J-E"</b>				
4p. Collap. Coupe.....	1995	2	3185	aghmnr
4p. Perm. Coupe.....	1995	2	3185	aghmnr
5p. Victoria.....	1995	2	3275	aghmnr
5. Sedan.....	1995	4	3300	aghmnr
<b>KISSEL</b> "6-70"				
4p. Cpe. Roadster.....	\$1595	.....	2920	ahmr
5p. Bro'm Sedan.....	1495	4	2915	ahmr
5p. Victoria.....	1595	.....	2990	.....
5. Sedan.....	1595	.....	3005	.....
<b>"8-80"</b> 125" W.B.				
5p. Phaeton.....	1885	4	3240	ahmnr
4p. Speedster.....	2095	2	3155	ahmnr
4p. Cp. Rdstr.....	2095	2	3343	ahmnr
5p. Spec. Bro'm.....	1985	2	3345	ahmnr
5p. Bro'm Sedan.....	2095	4	3400	ahmnr
5p. Conv. Bro'm.....	2495	.....	3515	ahmnr
<b>132" W.B.</b>				
7p. Touring.....	1985	4	3360	ahmnr
4p. Tourster.....	2095	4	3155	ahmnr
5p. Bro'm Sedan.....	2295	4	3455	ahmnr
7p. Sedan.....	2495	.....	3630	ahmnr
<b>"8-80S"</b>				
4p. Coupe Rdstr.....	1995	3350	.....	.....
5p. Brougham.....	1895	3250	.....	.....
5p. Sedan.....	1995	3350	.....	.....
4p. Victoria.....	1995	3320	.....	.....
<b>"8-90"</b> 131" W.B.				
5p. Phaeton.....	2185	4	3220	ahmur
4p. Speedster.....	2395	2	3360	ahmur
4p. Cpe. Rdstr.....	2395	2	3578	ahmur
5p. Spec. Bro'm.....	2295	2	3671	ahmur
5p. Bro'm Sedan.....	2395	4	3760	ahmur
5p. Conv. Bro'm.....	2795	.....	3863	ahmur
<b>139" W.B.</b>				
7p. Touring.....	2285	4	3630	ahmur
4p. Tourster.....	2395	4	3335	ahmur
5p. Bro'm Sedan.....	2595	4	3755	ahmur
5p. Sedan.....	2795	4	3975	ahmur
7p. Sedan Del.....	2985	4	3910	aghmorvrx
7p. Sedan Del.....	3495	4	4080	aghmorvrx
7p. Ber. Sedan.....	3585	4	4125	aghmorvrx
<b>LA SALLE</b> 125" W.B.				
2-4p. Roadster.....	2485	2	3755	aeghlmprr
5p. Phaeton.....	2485	4	3770	aeghlmprr
5p. Sp. Phaeton.....	2975	4	4170	Beghkmpr
<b>131" W.B.</b>				
2p. Bus. Coupe.....	2350	.....	.....	aeghlmprrtx
5p. Family Sedan.....	2350	.....	.....	aeghlmprrtx
2-4p. Coupe.....	2450	2	3365	aeghlmprrtx
2-4p. Conv. Cpe.....	2550	2	3390	aeghlmprrtx
4p. Victoria.....	2550	2	3385	aeghlmprrtx
5p. Town Sedan.....	2495	4	4065	aeghlmprrtx
5p. Sedan.....	2495	4	4090	aeghlmprrtx
2p. Coupe.....	3000	2	.....	aeghlmprrtx
5p. Sedan.....	3900	4	.....	aeghlmprrtx
5p. Town Cab.....	4500	4	.....	.....
5p. Trans. Cab.....	4700	4	.....	.....
<b>134" W.B.</b>				
7p. Family Sedan.....	2575	.....	.....	aeghlmprrtx
5p. Coupe.....	2625	.....	.....	aeghlmprrtx
5p. Cab Sedan.....	2675	.....	.....	aeghlmprrtx
7p. Sedan.....	2775	4	4345	aeghlmprrtx
5p. Imp. Sedan.....	2775	4	4315	aeghlmprrtx
7p. Imp. Sedan.....	2875	4	4570	aeghlmprrtx
<b>LINCOLN</b> "48"				
2p. Spt. Rdstr.....	\$4600	2	4930	aegklmprr
2-4p. Club Rdstr.....	4600	.....	5010	aegklmprr
7p. Spt. Touring.....	4600	4	4940	aegklmprr
4p. Snt. Phaeton.....	4600	4	4910	Beghklmprr
4p. Coupe.....	4600	2	4805	aegklmprr
4p. Sedan.....	4800	4	4930	aegklmprr
5p. Sedan.....	4800	4	5010	aegklmprr
2p. Coupe.....	5000	.....	4720	aegklmprr
7p. Sedan.....	5000	4	5050	aegklmprrtx
7p. Limousine.....	\$200	5165	.....	aegklmprr
4p. Berline.....	\$5500	5115	.....	aegklmprr
7p. Limousine.....	6000	5380	.....	aegklmprr
7p. Brougham.....	6400	5025	.....	aegklmprr
6p. Ber. Landau.....	6500	.....	.....	aegklmprr
7p. Cabriolet.....	6600	5160	.....	aegklmprr
7p. Le Baron Cab.....	7000	5200	.....	aegklmprr
7p. Holbrook Cab.....	7200	5280	.....	aegklmprr
7p. Collap. Cab.....	7300	5140	.....	aegklmprr
<b>LOCOMOBILE</b> "8-70"				
5p. Brougham.....	\$2100	4	3525	afghkmnr
4p. Vic. Coupe.....	2100	4	3575	afghkmnr
.....	2100	2	3600	afghkmnr
<b>"8-80"</b>				
4p. Spt. Touring.....	2850	.....	3972	aeghklmprr
<b>UVX</b>				
4p. Coupe.....	2975	2	.....	.....
4p. Collap. Coupe.....	3000	2	3780	aeghklmprr
<b>UVX</b>				
5p. Sedan.....	2850	4	3950	aeghklmprr
<b>UVX</b>				
5. Brougham.....	2900	4	3990	aeghklmprr
<b>UVX</b>				
7p. Sedan.....	3350	4	4140	aeghklmprr
<b>UVX</b>				
7p. Sub. Sedan.....	3500	4	4280	aeghklmprr
<b>UVX</b>				
<b>"48"</b>				
4p. Sportif.....	4	5030	afghjklrxx	.....
<b>UVX</b>				
7p. Touring.....	4	5330	afghklrxx	.....
.....	4	5640	afghklrxx	.....
.....	4	5404	afghklrxx	.....
6p. Brougham.....	4	5600	afghklrxx	.....
5p. Vic. Sedan.....	4	5868	afghklrxx	.....
7p. Lim. Enc. Dr.....	4	5624	afghklrxx	.....
7p. Cabriolet.....	4	5624	afghklrxx	.....
<b>"90"</b>				
4p. Sportif.....	5900	4	4475	aeghklmprr
<b>UVX</b>				
4p. Roadster.....	5900	2	4370	aeghklmprr
<b>UVX</b>				
7p. Touring.....	6000	.....	.....	aeghklmprr
<b>UVX</b>				
5p. Vic. Sedan.....	7300	4	4842	afghmprrtx
7p. Suburban.....	7500	4	4930	afghmprrtx
4p. Vic. Sed.....	7450	.....	.....	aeghklmprr
<b>UVX</b>				
7p. Town Bro'm.....	7500	4	4615	afghmprrtx
7p. Cabriolet.....	7500	4	4615	afghmprrtx
.....Collap. Cab.....	7750	.....	.....	aeghklmprr
<b>UVX</b>				
<b>MCFARLAN</b> "Str. 8" 131" W.B.				
2p. Roadster.....	\$3050	2	3400	afghlmprr
5p. Touring.....	2650	4	3400	afghlmprr
4p. Sp. Phaeton.....	3180	4	3:00	afghlmprr
3p. Town Coupe.....	3180	2	3650	afghlmprr
5p. Sedan.....	3180	4	3650	afghlmprr
5p. Brougham.....	3180	4	3650	afghlmprr
5p. Town Car.....	4600	4	3750	afghlmprr
<b>136" W.B.</b>				
7p. Sedan.....	3680	4	4000	afghlmprr
7p. Sub. Sedan.....	3780	4	4000	afghlmprr
<b>"TV6"</b>				
2p. Roadster.....	5800	2	4300	afghlmprr
5p. Spt. Tour.....	5600	4	4700	afghlmprr
7p. Touring.....	5700	4	.....	afghlmprr
5p. Sedan.....	6720	4	5200	afghlmprr
<b>UVX</b>				
7p. Sedan.....	6720	4	5200	afghlmprr
<b>UVX</b>				
7p. Town Car.....	9000	4	5200	afghlmprr
<b>MARMON</b> "68"				
2p. Roadster.....	\$1495	.....	.....	.....
5-p. Sedan.....	1395	4	.....	aeghmnrst
4-p. Vic. Coupe.....	1450	.....	.....	aeghmnrst
2-p. Coupe.....	1395	.....	.....	aeghmnrst
<b>"78"</b>				
2p. Roadster.....	1895	2	.....	ahlmnprrx
4p. Speedster.....	1965	4	.....	ahlmnprrx
2-4. Collap. Cpe.....	1995	2	.....	ahlmnprrx
2p-4. Coupe.....	1895	2	.....	ahlmnprrx
4p. Vic. Coupe.....	1995	2	.....	ahlmnprrx
5p. Sedan.....	1895	4	.....	ahlmnprrx
<b>"E-75"</b>				
2p. Speedster.....	3485	2	4251	aeghlmprr
4p. Speedster.....	3485	2	4256	aeghlmprr
5p. Phaeton.....	3485	4	4017	aeghlmprr
7p. Tour. Speed.....	3565	4	4480	aeghlmprr
7p. Coupe Rdstr.....	3565	2	4374	aeghlmprr
5p. Town Coupe.....	3195	2	4452	aeghlmprr
2p. Coupe.....	3485	2	4373	aeghlmprr
4p. Victoria.....	3485	2	4346	aeghlmprr
5p. Brougham.....	3565	4	4525	aeghlmprr
5p. Sedan.....	3565	4	4498	aeghlmprr
7p. Sedan.....	3640	4	4620	aeghlmprr
5p. Cus. Sedan.....	3680	4	4515	aeghlmprr
7p. Cus. Sedan.....	4075	4	4678	aeghlmprr
7p. Cus. Limou.....	4175	4	4718	aeghlmprr
<b>MOON "6-60"</b>				
5p. Phaeton.....	995	4	2340	an
3-5p. Roy. Rdstr.....	1095	2	2330	anw
3-5p. Roy. Cab.....	1295	2	2575	an
5p. Coach.....	995	2	2420	an
5p. Roy. Sedan.....	1195	2	2520	ahln
5p. Roy. Sedan.....	1295	4	2605	ahln
<b>"A"</b>				
5p. Touring.....	1195	4	2560	dn
5p. Roy. Rdstr.....	1395	2	2600	dn
5p. Collap. Cab.....	1795	2	2720	dn
5p. Sedan Del.....	1396	2	2710	dn
5p. Sedan Del.....	1545	4	2860	dn
<b>"6-72"</b>				
2-4p Roy Rdstr.....	1395	2	2630	aghm
5p. RoyCabRdstr.....	1445	2	2815	aghm
5p. Royal Sedan.....	1445	2	3050	aghm
5p. Royal Sedan.....	1545	4	3080	aghm
<b>"8-80"</b>				
5-p. C.C. Sedan.....	2195	4	3500	chmnr
5-p. Sedan.....	2195	4	3500	chmnr
<b>NASH</b> "Std. 6"				
5p. Touring.....	\$865	4	2325	Dghnr
2-4p. Conv t Cab.....	925	2	2305	Deghnt
2p. Coupe.....	845			

### KEY TO SYMBOLS

- |                               |                                |                          |                           |                          |
|-------------------------------|--------------------------------|--------------------------|---------------------------|--------------------------|
| A—Wood wheels with spare.     | D—Disk wheels with spare.      | I—Trunk and trunk rack.  | o—Car heater.             | v—Vanity set.            |
| a—Wood wheels.                | d—Disk wheels.                 | j—Trunk rack, no trunk.  | p—Cigar lighter.          | w—Windshield wings.      |
| B—Wire wheels with spare.     | e—Front and rear bumpers.      | k—Spare tire.            | r—Rear traffic signal.    | x—Clock.                 |
| b—Wire wheels.                | f—Front bumper.                | l—Spare tire lock.       | s—Spotlight.              | y—Overall length.        |
| C—Optional wheels with spare. | g—Shock absorbers or snubbers. | m—Engine heat indicator. | t—Vanity and smoking set. | z—Prices on application. |
| c—Type of wheels optional.    | h—Automatic windshield wiper.  | n—Dash gasoline gage.    | u—Smoking set.            |                          |



# Prices, Weights and Equipment of Current Passenger Car Models

Passenger and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passenger and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passenger and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passenger and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment
<b>"Special"</b>					<b>PEERLESS</b>					<b>ROAMER</b>					<b>"President 8"</b>				
4p. Roadster....	1225	2	2987	Dghnr	2-4p. Roadster....	\$1195	2	2800	deghlmnr	2p. Roadster....	\$1595	2	3225		5-p. Sedan.....	1985	4	4000	aeghimnrtx
5p. Touring....	1135	4	2980	Dghnr	5p. Phaeton....	1195	4	2765	aghlmnrw	2p. Coupe.....	1750	2	3380		7-p. Sedan.....	1985	4	4040	aeghimnrtx
2-4p. Cabriolet..	1290	4	3070	Dghnr	2-4p. C'pe Rdstr..	1295	4	2725	deghlmnr	5p. Sedan.....	1795	2	3450		5-p. DeL. Sedan..	2250	4	4185	Beghikmnp
2p. Bus. Coupe....	1165	2	3030	Dghnr	5p. Sedan.....	1295	4	2895	deghlmnr	5p. Sedan.....	1985	2	3410	ag	7-p. DeL. Sedan..	2250	4	4225	Beghlmnrtx
5p. Sedan.....	1215	2	3150	Dghnrt	5p. Phaeton....	1395	4	2850	aeghlmnrw	2p. Coupe.....	\$1985	2	3410	ag					
4p. Victoria.....	1295	2	3170	Dghnr	2-4p. Roadster...	1495	2	3025	eghlmnrw	5p. Brougham...	1985	2	3440	ag					
5p. Sedan.....	1-95	4	3250	Dghnrtuv	2-4p. Coupe....	1565	2	2975	aeghlmnr	5p. Sedan.....	1985	4	3570	ag					
5p. Coupe.....	1445	4	3380	Lghnrt	5p. 2d. Sedan....	1395	2	3000	aeghlmnr	5p. Sedan.....	2495	4	3650	cg					
<b>"Advanced"</b>					5p. Std. Sedan...	1395	4	3125	aghmnr.	5p. Tourer.....	2985	4	3880	cg					
121" W.B.					5p. Spt. Sedan...	1395	4	3100		5p. Sedan.....	3285	4	3980	cg					
4p. Roadster....	1475	2	3400	Dghmr	5p. DeL. Sedan...	1795	4	3125	Deghlmnr	<b>ROLLS ROYCE</b>					<b>STUTZ "BB"</b>				
5p. Touring....	1340	4	3400	Dghmr	5p. Phaeton....	1695	4	2930	aeghlmnrwx	<b>"Si. Ghost"</b>					<b>"Custom"</b>				
5p. Sedan.....	1425	2	3620	Dghlmnr	2-4p. Roadster...	1695	2	2960	aeghlmnrwx	<b>Open Models....</b>					<b>131" W.B.</b>				
5p. Sedan.....	1-95	4	3650	Dghlmnr	4p. Coupe.....	1725	2	3050	aeghlmnr	<b>Closed Models....</b>					<b>2p. Speedster....</b>				
127" W.B.					4p. Sedan.....	1835	2	3150	aeghlmnr	<b>"New Phan"</b>					<b>4p. Speedster....</b>				
7p. Touring....	1440	4	3500	Dghmr	5p. Sedan.....	1895	4	3200	aeghlmnrtx	<b>Open Models....</b>					<b>2p. Black Hawk..</b>				
5p. Sp. Touring...	1540	4	3500	Bghlmnr	5p. Landau....	1995	4	3250	aeghlmnrtx	<b>Closed Models....</b>					<b>4p. Black Hawk..</b>				
4p. Victoria.....	1595	2	3640	Dghlmnr	128" W.B.				B	<b>STAR "4"</b>					<b>4p. Black Hawk..</b>				
4p. Coupe.....	1775	2	3650	Dghmr	7-p. Sedan....	1985	4			<b>Roadster.....</b>					<b>2p. Coupe.....</b>				
5p. Amb. Sedan...	1925	4	3820	Dghlmnrtx	128" W.B.					<b>Bus. Coupe....</b>					<b>5p. Sedan.....</b>				
7p. Sedan.....	1990	4	3830	Dghlmnrtx	7-p. Sedan....	1985	4			<b>5-p. Sedan....</b>					<b>4p. Sedan.....</b>				
7p. Imp. Sedan...	2165	4	3900	Lghnrtx	5p. Ber. Lim....	2345	4	4100	Deghlmnrtx	<b>5-p. Sedan....</b>					<b>4p. Coupe.....</b>				
<b>OAKLAND "AA-6"</b>					<b>"6-80"</b>					<b>STEARNES</b>					<b>145" W.B.</b>				
5p. Sp. Phaeton...	\$1095	4	2820	aeghn	5p. Coupe.....	2705		3810	Deghlmnrtx	<b>KNIGHT</b>					<b>7p. Speedster....</b>				
4p. Sp. Rdster....	1075	2	2730	aeghn	5p. Sedan.....	2345		3875	Deghlmnrtx	<b>"F-6-85"</b>					<b>7p. Sedan.....</b>				
2-4p. Cabriolet..	1145	2	2825	ahn	2-4p. Roadster...	2245	2	3650	Deghlmnr	<b>4p. Roadster....</b>					<b>7p. Sedan Lim...</b>				
5p. 2d. Sedan....	1045	2	2890	ahn	7p. Sedan.....	2545	4	3975	Deghlmnrtx	<b>4p. Touring....</b>					<b>"Weyman Cus."</b>				
3p. Land. Coupe...	1045	2	2895	ahn	7p. Cus. Sed. Lim.	2645	4	42	Deghlmnrtx	<b>5p. Cab. Rdstr..</b>					<b>131" W.B.</b>				
5p. 4d. Sedan....	1145	4	2980	ahn	5p. Sedan.....	2345	4	5	Deghlmnrtx	<b>5p. Cus. Sedan...</b>					<b>5p. Sedan.....</b>				
5p. Land. Sedan...	1265	4	3050	aeghnou	7p. Sedan.....	2545	4	4050	Deghlmnrtx	<b>4p. Coupe.....</b>					<b>4p. Sedan.....</b>				
<b>OLDSMOBILE</b>					5p. Ber. Lim....	2345	4	4100	Deghlmnrtx	<b>5p. Std. Sedan...</b>					<b>4p. Coupe.....</b>				
"F-6"					<b>PIERCE ARROW</b>					<b>5p. Sedan Lim...</b>					<b>5p. Landau Sed..</b>				
Sp. Roadster....	\$995			aeghlmnr	2p. Runabout....	\$2900	2	3300	afghlmnr	<b>5p. Cus. Sed. Lim.</b>					<b>145" W.B.</b>				
5-p. Sp. Touring...	995			aeghlmnr	4-p. Touring....	3100	4	3330	afghlmnr	<b>7p. Sedan.....</b>					<b>5p. Sedan.....</b>				
2-p. Coupe.....	9-5			aeghlmnr	Conv't Rdster..	3450	2		afghlmnr	<b>7p. Sedan Lim...</b>					<b>5p. Club Sedan...</b>				
5-p. Sedan 2d....	9-5	2		aeghlmnr	2p. Coupe.....	3250	2	3265	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>5p. Sp. Sed. Land.</b>				
5-p. Sedan 4d....	10-5	4		aeghlmnr	5p. Brougham...	3250	4	3560	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>5p. Club. Land...</b>				
5-p. Landau Sed..	1085	4		aeghlmnr	5p. Club Sedan...	3300	4	3600	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>7p. Sedan.....</b>				
2-4p. Spt. Coupe..	995			aeghlmnr	2-4p. Coupe....	3350	2	3435	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>4p. Coupe.....</b>				
<b>OVERLAND</b>					5p. Sedan.....	3350	4	3600	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>5p. Std. Sedan...</b>				
"4" Whippet					5p. Sp. Sed. Land.	3350	4		afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>5p. Sedan Lim...</b>				
5p. Touring....	\$455	4	1985	ag	5p. Club. Land...	3400	4	3605	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>5p. Cus. Sed. Lim.</b>				
2p. Roadster....	485	2			7p. Sedan.....	3450	4	3670	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>7p. Sedan.....</b>				
2-4p. Roadster...	525	2	1930	agh	4p. Coupe....	3450	2	3450	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>7p. Sedan Lim...</b>				
2p. Coupe.....	535	2	2025	ag	7p. Ene. Dr. Lim.	3550	4	3760	afghlmnrtx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Coupe Cab....	545				2p. Runabout....	5875	2	4500	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Coach.....	535	2	2075	ag	4p. Touring....	5875	4	4510	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	585	4	2185	agh	7p. Touring....	5875	4	4585	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>PACKARD</b>					7p. Sedan.....	5875	4	4815	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
"526"					7p. Lim. Encl....	5875	4	4870	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Runabout....	\$2275	2	3620	Deghlmnpr	7p. Coupe.....	6375	2	4760	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Phaeton.....	2275	4	3665	Deghlmnpr	4p. Cpe. Sedan...	6375	2	4795	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	2285	4	4000	Deghlmnpr	4p. Sedan.....	6375	4	4830	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
2-4p. Coupe....	2350		3950		7p. Ene. Dr. Lan.	6000	4	4895	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Conv't Cpe...	2425		3875		7p. Sedan Land...	6000	4	4840	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>"533"</b>					4p. Lim. Encl....	6375	4	4880	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Phaeton....	2385		3745		4p. Sedan.....	347	4	4805	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Runabout....	2385		3700		2p. Coupe.....	6600	2	4745	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Touring....	2485	4	3865	Deghlmnpr	4p. Seilan Land...	6600	4	4800	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Coupe.....	2685	2	4000	Deghlmnpr	4p. Encl. Land...	6600	4	4800	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Club Sedan...	2685	4	4035	Deghlmnpr	7p. Fr. Limou...	7500	4	4740	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Sedan.....	2685	4	4145	Deghlmnpr	7p. Fr. Landau...	8000	4	4865	afghlrx	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Sedan Lim...	2785	4	4205	Deghlmnpr	<b>PONTIAC "6"</b>					<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>"443"</b>					2-4p. Roadster...	\$745	2	2230	ahn	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Runabout....	3875		4350	Djk	2p. Coupe.....	745	2	2435	ahn	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Phaeton.....	3875		4370	Djk	5p. 2d. Sedan...	745	2	2520	ahn	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Touring....	3975	4	4410	Deghklmnp	4p. Sport Cab...	795	2	45	ahn	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
2p. Coupe.....	4150				5p. Del. Sedan...	8-5	4	595	aeghn	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
2p. Conv't Cpe....	4250				<b>REO</b>					<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Coupe.....	4450		4635	Djk	2p. Roadster...	\$1685	2	3300	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Club Sedan...	4450	4	4710	Deghklmnp	5p. Brougham...	1685	2	3425	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Sedan.....	4450	4	4820	Deghklmnp	2p. Sp. Coupe...	1625	2	3320	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Sedan Lim...	4550	4	4860	Deghklmnp	4p. Victoria...	1845	2	3350	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>"Wolverine"</b>					5p. Sedan.....	1845	4	3550	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
4p. Cabriolet....	1195	2	2850	aeghnr	5p. Del. Sedan...	1995	4	3550	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Brougham...	1195	2	2960	aeghnr	<b>"Flying Cloud"</b>					<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	1295	4	3070	aeghnr	2p. Roadster...	\$1685	2	3300	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>ROAMER</b>					5p. Brougham...	1685	2	3425	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
2p. Roadster....	\$1595	2	3225		2p. Sp. Coupe...	1625	2	3320	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
2p. Coupe.....	1750	2	3380		4p. Victoria...	1845	2	3350	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	1795	2	3450		5p. Sedan.....	1845	4	3550	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	1985	2	3410	ag	5p. Del. Sedan...	1995	4	3550	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
2p. Coupe.....	\$1985	2	3410	ag	<b>"Wolverine"</b>					<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Brougham...	1985	2	3440	ag	4p. Cabriolet....	1195	2	2850	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	1985	4	3570	ag	5p. Brougham...	1195	2	2960	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Tourer.....	2495	4	3650	cg	5p. Sedan.....	1295	4	3070	aeghnr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5p. Sedan.....	2985	4	3880	cg	<b>STUDEBAKER</b>					<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
7p. Sedan.....	3285	4	3980	cg	7p. Tourer Royal	\$11-5	4	3000	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>ROLLS ROYCE</b>					5p. Du Phaeton.	11-5	4	3105	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
"Si. Ghost"					5p. Roadster...	1245	2	3000	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
Open Models....				Bfghklmnp	7p. Tourer Royal	1-9	4	3-20	ghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
Closed Models....				Bfghklmnp	2p. Coupe.....	1195	2	3120	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
"New Phan"				Beghklmnp	4p. Coupe Royal	1295	2	3120	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
Open Models....				Beghklmnp	4p. Victoria Royal	1295	2	3165	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
Closed Models....				Beghklmnp	5p. Sedan.....	1195	4	3-30	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>STAR "4"</b>					5p. Sedan Royal..	1295	4	3235	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
Roadster.....	495				<b>"Commander"</b>					<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
Bus. Coupe....	495				4p. Sp. Roadster.	1695	2	3340	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5-p. Sedan....	495	2			2p. Coupe.....	1495	2	3395	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
5-p. Sedan.....	570	4			4p. Victoria...	1495	2	3395	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
<b>STEARNES</b>					5p. Sedan.....	1495	4	350	aeghmr	<b>7p. Sedan Lim...</b>					<b>7p. Con. T'n Car.</b>				
KNIGHT																			

# Mechanical Specifications of Current Passenger Car Models

*This list comprises current cars distributed on a national basis only. Data for previous models back to 1990 will be found in the Chilton Catalog and Directory*

MAKE AND MODEL	Wheel Base (inches)	Tire Size—Ballrooms	Make and Model	Bore and Stroke	Rated H.P.	N.A.C.C.	Valve Arrangement	Camshaft Drive	Pattern Material	No. Main Bear.	Crankshaft Vibration Damper	Oil System	Cooling System	Thermosstat	Radiator	Superheater	Carburetor	Air Cleaner	ELECTRICAL SYSTEM		Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type and Location	Wheel Type	Steering Gear—Type and Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make	ABBREVIATIONS— NAMES OF MFRS. OF STOCK PARTS
																			Generator and Ignition System	Generator and Ignition System												
Auburn.....76	120	28x5.25	Lyc.....WS	6-2 1/2x4 1/2	19.8	185	T	Ch.....Al.	Al.	4	Y	PG	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.9	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Auburn.....88	125	30x6.00	Lyc.....GS	8-2 1/2x4 1/2	26.4	249	T	Ch.....Al.	Al.	4	Y	PG	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.7	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Auburn.....115	130	30x6.20	Lyc.....GS	8-3 1/2x4 1/2	33.8	287	T	Ch.....Al.	Al.	4	Y	PG	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	3.9	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Buick.....115	130	30x6.20	Lyc.....GS	8-3 1/2x4 1/2	23.4	207	T	Ch.....Al.	Al.	4	Y	PG	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.9	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Buick.....128	140	31x6.00	Own.....	6-3 1/2x4 1/2	29.4	274	I	He.....CI.	CI.	4	Y	PC	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.72	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Cadillac.....341	140	32x6.75	Own.....	8-3 1/2x4 1/2	35.1	341	T	Ch.....NI.	NI.	8	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.9	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chandler.....Big 6	124	32x6.00	Own.....Big 6	6-3 1/2x4 1/2	29.4	286	L	Ch.....CI.	CI.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.45	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chandler.....Spec. 6	109	30x5.00	Own.....Spec. 6	6-3 1/2x4 1/2	23.4	196	L	Ch.....CI.	CI.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.90	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chandler.....Royal St. 8	124	32x6.00	Own.....Royal St. 8	8-3 1/2x4 1/2	33.8	311	L	Ch.....CI.	CI.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.45	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chevrollet....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chrysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chrysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Chrysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P	Col.....	4.70	E-E	E-E	H	Ross	S-56 1/2	Bijur.	A Bee—American-Beech
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Crysler....."62"	153 1/2	29x4.75	Own....."62"	6-3 1/2x4 1/2	21.0	170	L	Ch.....Al.	Al.	4	Y	PH	Pu.....	Y	N	.....	.....	N	.....	D-R	D-R	War.....	m-U-P									



# Ex-ternal or In-ternal- LOCKHEED-HYDRAULIC *Four-Wheel Brakes are Best*

**O**VER a period of years, continuous test and comparison have satisfied us completely that application of braking power transmitted through the hydraulic principle is best, *no matter what the form of brake.*

This superiority is due, of course, to the fact that the hydraulic principle assures that braking pressure is always exerted *equally* on each of the four braking mechanisms at the wheels.

Whether the brakes are external or internal, they are far superior when the means of actuation is based upon the hydraulic principle as perfected in application by Lockheed.

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HYDRAULIC BRAKE COMPANY  
Detroit, Michigan, U.S.A.

### Mechanical Specifications of Current Passenger Car Models—Continued

MAKE AND MODEL			ENGINE										ELECTRICAL SYSTEM		REAR AXLE		STEERING GEAR—Type and Make		REAR SPRINGS—Type and Length		CHASSIS LUBRICATION—Type and Make		ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS											
Wheel Base (Inches)	Tire Size	Displacement (Cyls.)	Model	Number of Cyls.	Bore and Stroke	Rated H.P.	Valve Arrangement	Camshaft Drive	Platen Material	No. Main Bearings	Dampers	Oiling System	Oil Cleaner?	Cooling System	Thermosafe?	Radiator	Sublimate?	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Universal—Type and Make	Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type and Location	Wheel Type	Extr.	Steering GEAR—Type and Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make	Abbreviations—Names of Mfrs. of Stock Parts	
131-139	30x6.75	80-84	Own...	8-3	3.4x4.5	32.6	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
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125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al.	Pr-Al.	A-Bee—American Bosch
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125-134	32x6.75	84-88	Own...	8-3	3.4x4.5	31.2	1-1-1-1-1	Ch. Ch.	Al.	9	N	PA	Y	Pa	Y	Y	N	Sch...	Y	D-R...	D-R...	P.B.&B.	W.G.	m-Mec	1/2	Tim.	4.89	E-E	E-T	H	Pr-Al.	Pr-Al		



# At Last- a Trouble-proof SHOCK ABSORBER

**The Only Shock Absorber  
With a Double Drum**

**Rugged Construction  
No Oiling or Greasing  
Easy Installation  
Lightning-Action  
No Pre-Loading  
Noiseless**

*Unconditionally  
Guaranteed*  
**AGAINST  
ALL STRAP  
AND SPRING  
BREAKAGE  
FOR THE  
LIFE OF  
THE CAR**

Not a chance of strap or spring breakage with this shock absorber that eliminates all trouble for jobber, dealer and car owner. Trade and public demand the New Chanson because it needs no servicing or adjusting and is *Unconditionally Guaranteed*—not for 30 days or 60 or 90—but for the Life of the Car.

Manufactured by **CHANSON DIVISION**  
Illinois Iron & Bolt Co., Carpentersville, Ill.

## CHANSON

(Reg. U. S. Pat. Off.)

### SHOCK ABSORBERS

CHANSON MEANS CAR COMFORT

Special make  
Standard  
PH—Pressure to mains, rods, cam-  
shaft.

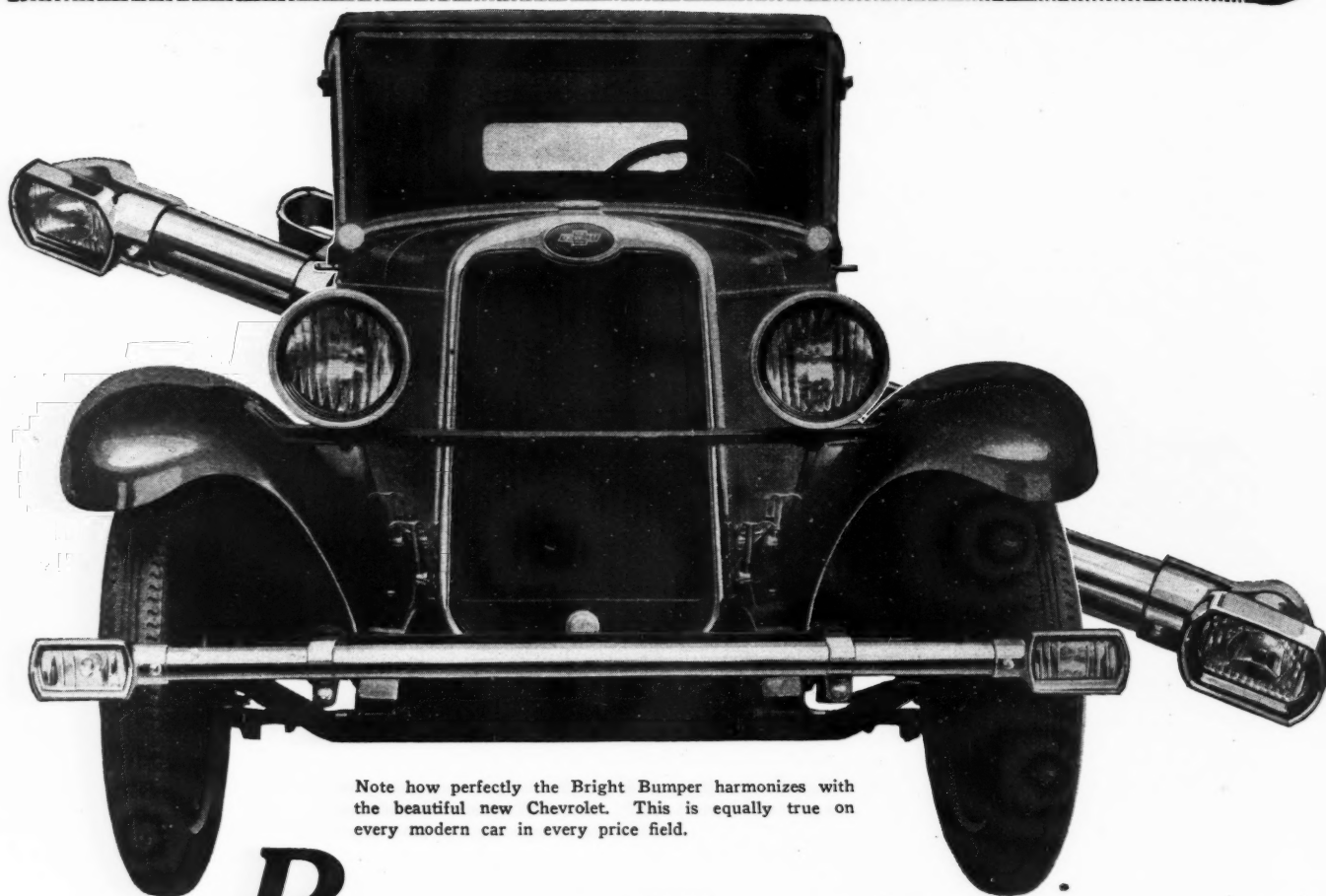
Platform (rear springs) PB—Pressure to mains, rods,  
timing case.

N—Nickel Iron

HS—Hydrostatic

E—External rear wheels  
E—External transmission  
E—External rear wheels  
E—External transmission  
E—External rear wheels  
E—External transmission

# BRIGHT BUMPERS



Note how perfectly the Bright Bumper harmonizes with the beautiful new Chevrolet. This is equally true on every modern car in every price field.

## *Beacons Your Path ~ To "Bumper" Profits*

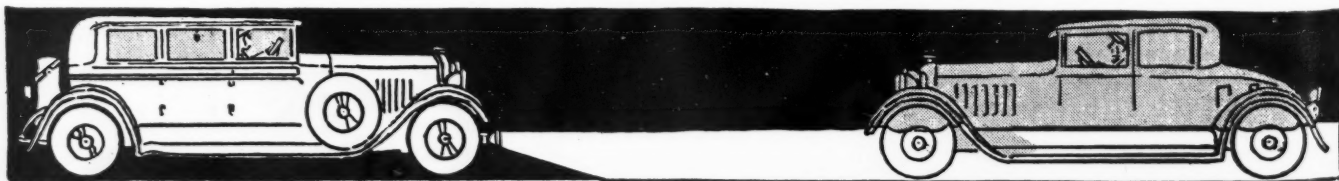
**R**EAL collision protection—plus a pair of powerful road lights positively guaranteed against breakage.

Here's a bumper with sensational selling features. BRIGHT BUMPER beacons the highway from ditch to ditch for more than 500 feet ahead of the car. The powerful road lights assure the driver his full share of the highway. They eliminate the danger of sideswipe. No glare to annoy approaching drivers—the powerful beam from the Bright Bumper is never more than 20 inches above the road.

Made in black with nickel ends, all nickel and in colored Duco to match car finish when desired. Fittings for most standard cars. Tested and approved by the Underwriters Laboratories, Bright Bumpers offer dealers, distributors and jobbers unlimited opportunity.

*[ Write now for all the Bright Bumper facts  
and your discounts. ]*

THE WARREN TOOL & FORGE CO., 400 Griswold St., Warren, O.



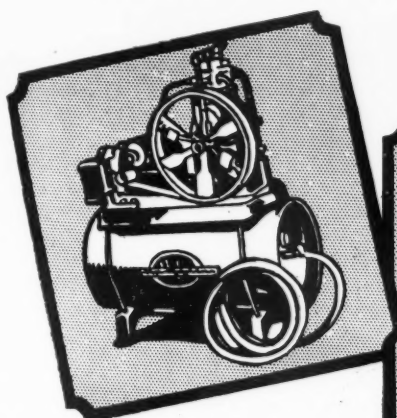


==1854 • 74th Year • 1928==

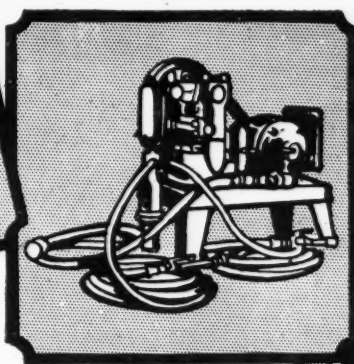
*We are pleased to announce*

# important reductions

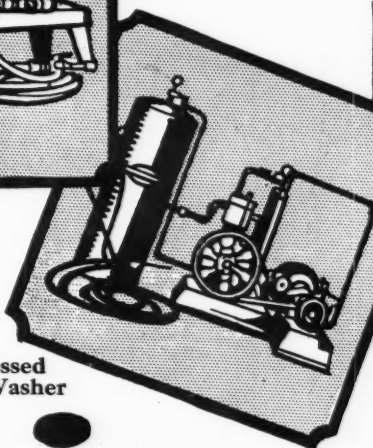
in Curtis prices  
for 1928, on ~



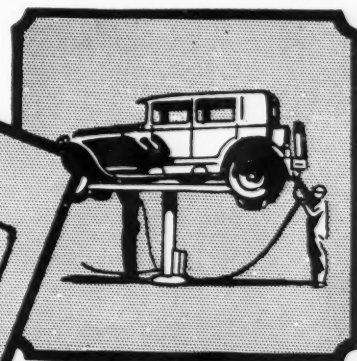
Air  
Compressors



Hydraulic  
Car Washer



Compressed  
Air Car Washer



Rotating Auto Lift, Free  
Wheel or Roll On Type

Write or wire for  
new low prices

# Curtis

Pneumatic Machinery Company

# St. Louis

74th  
Year

# SHERWIN-PAINTS VARNISHES

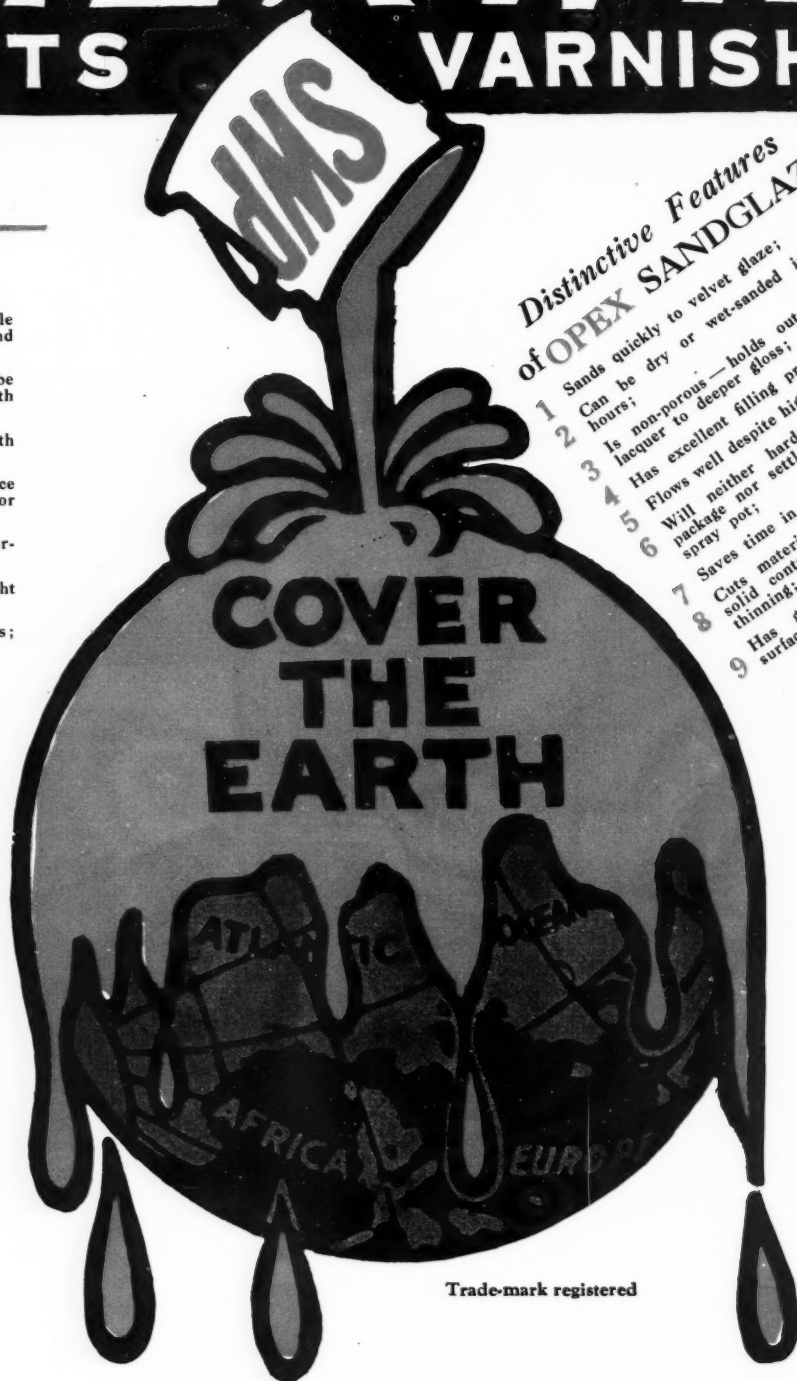
If you want—

- 1 A hard, tough, but not brittle film that is wear, water and weather proof;
- 2 A natural gloss which can be brought to a high lustre with the lowest labor cost;
- 3 Exceptional covering capacity with a minimum material cost;
- 4 An even flow and smooth surface free of bubbles, orange peel, or blushing;
- 5 Fast lacquer enamels and colorless clears;
- 6 Uniformity of consistency, weight and shade;
- 7 No residual odor or toxic fumes;

—You will use

**OPEX**

*The perfected  
lacquer enamel*



Trade-mark registered

## Distinctive Features of OPEX SANDGLAZE


- 1 Sands quickly to velvet glaze;
- 2 Can be dry or wet-sanded in two hours;
- 3 Is non-porous—holds out finishing lacquer to deeper gloss;
- 4 Has excellent filling properties;
- 5 Flows well despite high solid content;
- 6 Will neither harden in bottom of package nor settle when thinned in spray pot;
- 7 Saves time in sanding;
- 8 Cuts material cost because of high solid content which requires 150% thinning;
- 9 Has greater elasticity than other surfacers.

# LARGEST IN



# WILLIAMS

## LACQUERS · ENAMELS

A better, faster job  
when you use  Sandglaze  
... the perfected undercoater

ANY way you look at it, the most expensive operation in finishing a car is applying and sanding the undercoater. Opex Sandglaze cuts the cost of this operation—through easier application, better filling, and speedier, easier sanding.

In two hours after application Sandglaze can be sanded to a smooth velvet finish that is elastic but non-porous—that holds the finishing coats out to a beautiful deep lustre.

Yet these remarkable results have been accomplished without sacrifice of durability. To formulate such a product was a big task, even for the world famous laboratories of Sherwin-Williams. But the results—both in custom shops and on the assembly lines of big production plants—have more than justified the great amount of intensive research and exhaustive testing that has made Sandglaze possible.

Note the distinctive features listed opposite. Then send the coupon for complete details.

**THE SHERWIN-WILLIAMS Co.**

Cleveland, Ohio

The Sherwin-Williams Co.  
420 Canal Road, N. W., Cleveland, Ohio  
Please send complete information regarding  
Opex Sandglaze  
Name.....  
Address.....  
Business.....

# THE WORLD



## Proof!

Hammett users write the best ads—  
read what they say:

LINNTON, OREGON

"Just try and take our motor tester away  
from us!"

*Dewey's Garage*

MIRANDA, SOUTH DAKOTA

"Mine paid for itself on the first job."

*John Byrine*

WESS. SPGS., SOUTH DAKOTA

"Would not be without it for twice the price."

*Joe Rumelhart*

BUFFALO, KANSAS

"An aid to any shop."

*Hannardo Garage*

HYDEVILLE, VERMONT

"Already paid for itself. Takes the guess-  
work from motor repairing."

*McClure Garage*

CRYSTAL FALLS, MICHIGAN

"The Hammett Motor Tester makes and  
holds customers for me. Especially with high  
speed motors the Hammett Motor Tester is  
invaluable."

*John C. Aeschliman*

BELFAST, MAINE

"Very best piece of equipment we have—  
and we have a lot of equipment."

*City Garage*

HARVARD, ILLINOIS

"Saves us hours and hours of unnecessary  
labor."

*S. M. Kirshner*

EITZEN, MINNESOTA

"I wouldn't sell my Motor Tester for five  
times what it cost."

*Chas. A. Carlson*

BLACKSHEAR, GEORGIA

"and have found it a great help in finding  
loose bearings and other motor knocks."

*Blackshear Garage*

BRUCE, WISCONSIN

"One of the handiest tools we have around  
the shop."

*Bruce Auto Co.*

CLINTON, INDIANA

"Would not try to operate shop without a  
Hammett Motor Tester."

*Vermilion Chr. Co.*

QUINTON, OKLAHOMA

"Best ever."

*Schulze Motor Co.*

CAREY, OHIO

"A wonderful help in locating knocks, and  
eliminates all guess work. Wouldn't sell it at  
any price."

*Stoll Garage*

## 11,000 Garage Men Endorse the Hammett Motor Tester

"WE have used your Motor Tester with success on all  
makes of cars and would not be without it for any  
money. As a business getter it is a big help, for by showing  
a customer just what is wrong with each cylinder of his  
motor we have been able to sell some money making jobs  
when otherwise it would have been impossible. We have  
received so much satisfaction from our motor tester that  
we are very much interested in your Motor Phone. Kindly  
send us your user Proposition."

*Fay & Martin, Masena Springs, N. Y.*

This letter and others in this ad, are typical of hundreds in  
our files, testifying to the benefits derived from the *Hammett  
Motor Tester*. We have users throughout the length and  
breadth of the country—everyone is an enthusiastic booster.  
You'll be enthusiastic, too, when you learn the tremendous  
saving of mechanics' time, the increased business which  
comes with the elimination of guess-work. Order your  
Hammett today—either through your regular jobber or direct.  
You buy it on a money-back guarantee—it must sell itself  
to you, or there's no sale!

### Today!—Order Your HAMMETT Business Builders

**Hammett Motor Tester No. 2**  
Original *Hammett Motor Tester*—  
quickly and surely locates loose wrist  
pins, bearing knocks, sloppy pistons,  
leaky valves, bent con rods and other  
motor troubles. With this device  
you create the vacuum and com-  
pression strokes by hand, with your  
motor idle, in one cylinder at a time  
—reproducing the same knocks and  
leaks produced by the running motor.  
There can be no mistakes, no  
guess-work. Price, complete **\$13.50**

**Hammett Motor Testing Outfit**  
Consists of extra large Motor  
Tester, with fittings for all cars;  
large size compression gauge,  
guaranteed accurate; and set of  
Hammett Motor Phones—a highly  
sensitive device which instantly  
detects little knocks and taps of  
cam shaft, timing gear, valve tap-  
pet, water pump, generator, etc.  
A complete heavy duty outfit for  
the largest shops. Price complete,  
each ..... **\$20.00**

**HAMMETT MANUFACTURING CO.**  
13th and Oak Streets Kansas City, Missouri

# HAMMETT MOTOR TESTER



# MoToTRUNK



*Car Dealers . . .*

***MoToTrunk is Ready!***

New Colors—new dimensions—new racks and fittings! MoToTrunk has been re-designed for new 1928 models of popular-make-cars.

But MoToTrunk retains the same sturdy construction and the same care in detail that have popularized previous models. It is of steel construction throughout. It is weather-stripped to prevent interior dampness or dust. Cover is mounted on full-length piano hinge. Locks and fittings are heavily nicked.

*Write today for price lists, discounts and complete information*

**MOTOR TRUNK COMPANY**

465 York Street

Detroit, U. S. A.



## Prompt Deliveries and Low Prices!

The prompt attention that we give your orders for rewound armatures and field coils, together with our low prices, gives you a double chance to save money by sending your rewinding jobs to "The Armature Rewinders."

**Write for  
our  
Special Price  
on Ford  
Armatures  
in  
Quantities**

**Peatross & Arthur**  
"The Armature Rewinders"

1643 West Broad St.  
RICHMOND, VA.

*There are Profit Making Ideas  
in Every Issue of*

# MOTOR AGE

Many subscribers of MOTOR AGE, who realize the value of its contents each week, route every issue regularly through their places of business to all departments.

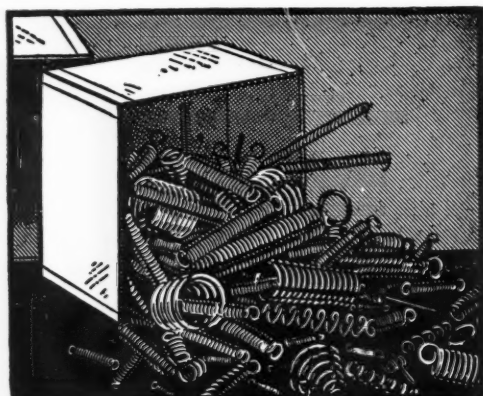
As a means of business-building this is a profitable habit to encourage, both for the benefit of the organization and its individual members. It is always best to read MOTOR AGE every week.

# MOTOR AGE

CHESTNUT and 56th STS.

PHILADELPHIA, PA.

## Trouble Savers!



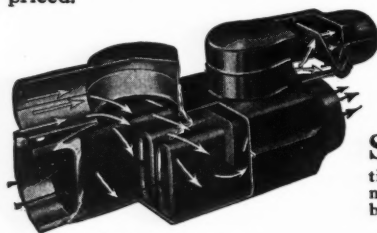
**MONEY MAKERS!** Peck Spring Assortment No. 1, shown here, contains over 100 steel and brass expansion and compression springs, in sizes most needed on repair jobs. A convenience for your customers as well as a profit for yourself. Sell them at 25 cents each and you net a \$23.50 profit! Other assortments list at \$3.00 and \$5.00. Ask your jobber about them, or write us. **THE PECK SPRING COMPANY,** Plainville, Conn.

## PECK'S SPRING ASSORTMENTS

# Heats Quickly! Installed Easily!

From the car owners' viewpoint: The Standard Safety Heater circulates an abundance of clean preheated air quickly, dependably. No obstructions. Plenty of heat when they want it.

And from yours: Only 90 minutes as a maximum for installation and only one size to carry for servicing practically all cars. Competitively priced.



**Safe** — a one piece gas-tight casting with no welded or brazed joints.

*Send for prices and discounts*

**STANDARD TUBE & MFG. CO.**

2434 Scotten Avenue

Detroit, Mich.

*Canadian Distributors:*

Railway & Power Engineering Corp., Ltd.  
Montreal TORONTO Winnipeg

## Service Station Owners

**YOU CAN MAKE FROM \$200.00 to \$500.00 MORE PER MONTH**

If you lubricate cars now it will increase your business. If you don't grease cars now you can cash in on this profitable business with the help of a **GLADISH Electric Auto Elevator.**

**AMERICAN HOIST CORP.**

2420 E. 14TH STREET

**CHATTANOOGA TENNESSEE**

### "ONE OF OUR BEST INVESTMENTS"

Have serviced 300 cars in six weeks with an income of \$450, that previously did not get. The elevator is one of my best investments.

**TRIANGLE SERVICE STATION,**  
Philadelphia, Penn.

## Mounts Chain Tightly In One Minute



The **EZ-CHAIN-ON** makes it possible to put chains on tightly without jacking the car, taking up the slack or soiling the clothes—all in one minute. And how they sell! List at 35c each, 65c per pair. Liberal discount. See your jobber.

**Protex-A-Motor Mfg. Co.**  
Pittston, Pa.

**EZ-CHAIN-ON**  
TIRE CHAIN MOUNTERS

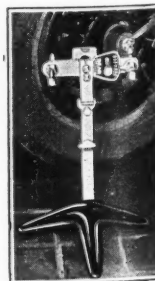
## BIG PROFITS IN AXLE ALIGNMENT

Axle caster is the basic steering angle—when an axle is tilted at the wrong angle, it causes hard steering, tire cupping, and **SHIMMY**. Unless axles are in line, all checks and corrections of front wheel pitch and toe-in are worthless.

The **Bear Axle Gauge** is the only practical tool that checks axle tilt and finds bent or twisted axles without removing them. Takes ten minutes to use, and it will find hundreds of dollars worth of repair work for your garage, every month. Half of the cars on the road need wheel and axle alignment service. Specialize, and make big money—others are doing it—so can you. Write for full information.

We make all of the equipment for complete alignment service—recommended by all principal automobile and tire manufacturers.

Write for our free Manual—tells how to locate **SHIMMY** and all other troubles due to wheel and axle alignment.



**Bear Manufacturing Co., Rock Island, Ill.**



# Rubyfluid

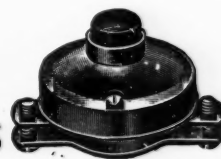
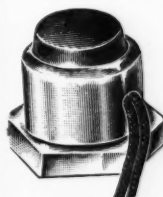
## Makes a Tight Joint



The results of your work with Rubyfluid are right. You know that before you start.

That's why this non-corrosive, non-explosive, non-injurious soldering and tinning flux is preferred by mechanics everywhere. Do a job with Rubyfluid. You'll like it.

The Ruby Chemical Co.  
68-70 McDowell St., Columbus, Ohio



**PUSH BUTTONS**

ARE

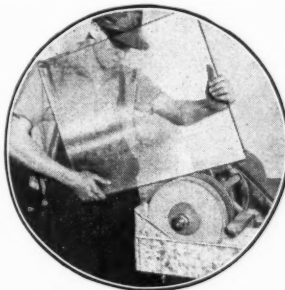
among the foremost items of IDEAL AUTO ACCESSORIES, which because of their excellent quality and service, have become standardized replacements parts insuring a continuous profit.

Ask for complete catalog.

**IDEAL CLAMP MFG. CO., INC.**  
200 BRADFORD ST. BROOKLYN, N.Y.

## LANGE AUTO GLASS EDGERS

### DO RAPID WORK



TIME saved is money earned. Lange Glass Edgers grind, smooth and polish edges of Auto Body plates, windshields, side wings, etc., in record time, enabling you to handle a large volume of this profitable work. Write for Catalog and full details about the Lange Junior Edger.

Henry G. Lange Machine Works  
166 N. May Street, Chicago

## FOLLETT'S NEW MODEL TIME STAMP

accounts for every labor minute



Learn the interesting details from our descriptive data.

Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

**NOV 19 1920 4 31 PM**

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic — except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N.J.  
"Established Since 1904"

# Read It!

- 1 for fresh news
- 2 for new selling plans
- 3 for merchandising ideas
- 4 for hints on buying
- 5 for better servicing
- 6 for lower overhead
- 7 for increased profits

It will pay every dealer  
to read every issue of

# MOTOR AGE

## Every Car Owner Needs

"Common-Sense"  
Closed Car  
Ventilators

**Now**

Tell  
Them So and  
Increase Your Profits  
Ask Your Jobber or



Write ACKERMAN-BLAESSER-FEZZEY, INC., Manufacturers of "Common-Sense" seat snubberettes for auxiliary seats in closed cars.  
1258 Holden Avenue Detroit

clean  
with

## Cleans without scrubbing!

That is one of the big advantages of Oakite. It does away with costly hand cleaning of repair work. Oakite materials soak parts and assemblies clean . . . remove dirt, grease and muck quickly and thoroughly. Write for booklet.

Oakite is manufactured only by  
OAKITE PRODUCTS, INC.  
18E Thames Street New York, N. Y.

# OAKITE

Industrial Cleaning Materials and Methods

**Weidenhoff** **Shop Equipment**  
for Battery and Electrical Service  
4358 Roosevelt Road Chicago, Illinois

**Stops Pump-shaft Leaks and Saves the Winter Solution**  
CONNEAUT PLASTIC METALLIC PACKING will keep the water-pump tight no matter what winter solution is used.  
All sizes in one can. Stocked with your Jobber  
1 lb. can ..... \$1.75 per lb.  
5 lb. can ..... \$1.60 per lb.  
THE CONNEAUT PACKING CO.  
Conneaut, Ohio

**VITALIC**  
Fan Belts, Radiator Hose, Air Hose, Universal Joint Discs  
"Tougher than Elephant Hide"  
Sold through the Jobber Only.  
Continental Rubber Works Erie, Pa.

**free** The Book "AIR PROFITS"  
with for your copy  
Shows how to get more work out of an air compressor. How to use compressed air for many pay jobs.  
BRUNNER MFG. CO. UTICA NEW YORK  
BRUNNER AIR COMPRESSORS

**FREE** **MANLEY MFG. CO.**  
York, Pa., U. S. A.  
SWAP a postage stamp for thousands of dollars worth of real facts on Car Washing. Send for your free copy of the hand book.

**Valve Face Grinding Machine**  
—with the NEW Sioux Roller Chucking System. Amazing accuracy and speed. Investigate before you buy.  
Your Jobber Sells It  
ALBERTSON & CO. SIOUX CITY, IA.

Do you know about  
**HOUDAILLE**  
Hydraulic Double Acting  
**SHOCK ABSORBERS**  
Write  
Houde Engineering Corp.  
539 E. Delavan Ave. Buffalo, N. Y.

**Packard Cable**  
The Packard Electric Co.  
Warren, Ohio

**STAY-ON TIRE CHAIN ADJUSTER**  
Valve Brake and Clutch Springs  
**CUYAHOGA SPECIALTY COMPANY** 10252 BEREA ROAD CLEVELAND, OHIO

**JOHNSON**  
Every Johnson Quality Bronze Bushing produced today must safeguard a most enviable reputation gained thru a quarter century of successful operation.  
Johnson Bronze Co., New Castle, Pa.  
**BUSHINGS - BARS - BEARINGS**

**"Bellevue" Side-Plate Trunk Carriers**  
Most efficient for all Cars  
The Bellevue Mfg. Co. Bellevue, Ohio

**TIMKEN Tapered ROLLER BEARINGS**

**STANDITALL AUTO RADIATOR**  
Damageproof against repeated bollings and freezings. Built to last the full life of the car. Complete radiators for Fords, Chevrolets, Dodges and Maxwells. Cores for all cars and TRUCKS. If not at your jobber's, write direct.  
J. C. Black Mfg. Co., Inc., Oil City, Pa.

**NEXT WEEK**  
—is the time to read next week's issue of MOTOR AGE, as you are reading this week's issue this week  
**MOTOR AGE**  
Chestnut and 56th Sts. Phila., Pa.

**FREDERICKS Rewinds**  
New low prices: Rewinding or exchanging any two unit type of automobile generator or starter armature, \$2.50. Any type of Ford armature \$1.50. Special prices on Ford armatures in quantities.  
H. M. FREDERICKS CO., Look Haven, Pa.

Senior (all nickel) \$4.50  
Junior (all nickel) 3.50  
**KEYSTONE SELF-LOCKING RADIATOR CAPS**  
Ask your jobber or write us  
THE NORLIPP COMPANY  
568 W. Congress St. Chicago  
Eagle ..... \$6.00  
Eaglet ..... \$4.00  
Includes Initial or Emblem Plate





# The Stage is all set for this ACT—Dealer, do your stuff



**E**VERY owner of an Oil Filter-equipped car is a customer for a Renewal Cartridge one or more times a year, *if you take the initiative in asking him to let you test his Filter.* Otherwise he may neglect to do so.

Two million cars equipped with AC Oil Filters now on the road. To this number, 10,000 cars are being added every day. Among the cars and trucks now being equipped at the factory are:

Buick	Cleveland Tractors	Kissel	Oakland
Cadillac	Dodge Brothers	La Salle	Oldsmobile
Chandler	Federal Trucks	Maccar Trucks	Peerless
Chevrolet	G. M. C. Trucks	Moon	Yellow Cab
	Graham-Paige	Nash	

While testing his Oil Filter, check his spark plugs. If they have gone more than 10,000 miles, recommend a new set of AC's. Here is another big market for you, the largest accessory re-



AC-SPHINX  
Birmingham  
ENGLAND

AC Spark Plug Company  
FLINT, Michigan

AC-TITAN  
Clichy (Seine)  
FRANCE

AC SPARK PLUGS AC SPEEDOMETERS AC AIR CLEANERS AC OIL FILTERS AC FUEL PUMPS  
AC GASOLINE STRAINERS AC AMMETERS AC OIL GAUGES AC THERMO GAUGES

placement market in the world. Think of 12,000 cars a day equipped at the factory with AC Spark Plugs.

Reports from all over America show that aggressive, well-stocked AC Dealers are now doing more business in AC units than ever before. Do your share and you are assured of a large and ever growing source of profit.

Your guaranty of permanency — over 200 of the world's most successful manufacturers use AC units as equipment.

© 1928, AC Spark Plug Co.



S  
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UMPS  
UGES



*for Economical Transportation*



**83**  
**QUALITY**  
**FEATURES**

**Bigger  
and  
Better**

**Reduced  
Prices!**

The Touring or Roadster	\$495
The Coach	\$585
The Coupe	\$595
The 4-Door Sedan	\$675
The Sport Cabriolet	\$665
The Imperial Landau	\$715
Utility Truck (Chassis Only)	\$495
Light Delivery (Chassis Only)	\$375

All prices f.o.b. Flint, Michigan

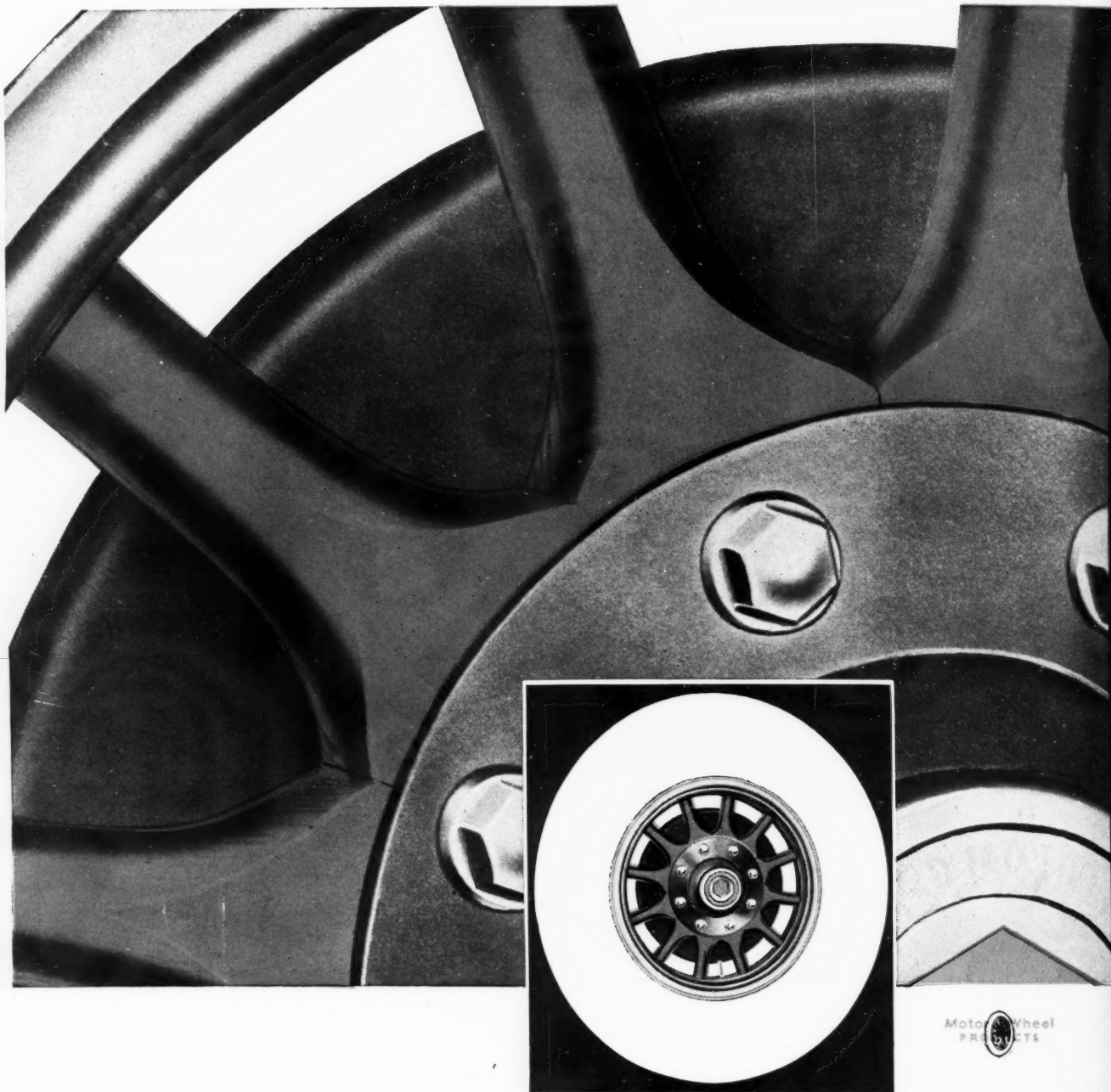
## *An Improved Motor* in the New Chevrolet

Famous throughout the world for its power, efficiency and dependability—the Chevrolet valve-in-head motor now incorporates such basic engineering advancements as alloy “invar-strut” constant clearance pistons, hydro-laminated camshaft gears, crankcase “breathing” system, thermostat circulation control,

mushroom type valve tappets and a complete new steel motor enclosure. This improved motor, with its thrilling new speed, acceleration and smoothness, is typical of the quality and value that have made the Bigger and Better Chevrolet one of the most saleable automobiles in the history of the automotive industry.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN  
Division of General Motors Corporation

Q U A L I T Y   A T   L O W   C O S T



AN exquisitely smart, utterly practical, demountable wood wheel – entirely interchangeable with steel and wire—is but the latest notable Motor Wheel attainment. Any motor car model, on wheels of any type, may have the mechanical and sales advantages of Motor Wheel excellence.

MOTOR WHEEL CORPORATION, LANSING, MICHIGAN  
WORLD'S LARGEST WHEEL BUILDERS

# Motor Wheel



